

# THE AUTOMOBILE

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## VANDERBILT CUP COURSE FOR 1905 RACE.

THE course chosen for the Vanderbilt cup race in 1905, and for the American Eliminating trials preceding that race, differs markedly from the course of last year. Instead of being in the central

grades up to or exceeding 8 per cent., and two or three fairly long hills as well.

A conspicuous feature of the course is the fact that it is so laid out as to pass through no towns at all of any size, and in

course is laid over very narrow roads, many of them hardly more than 15 feet wide, and altogether unsuited for the passing of one racing machine by another at 50 or 60 miles an hour. From the broken character of the



A CHARACTERISTIC VIEW ON THE VANDERBILT CUP COURSE—THE HAMLET OF EAST NORWICH—TOURING CAR IN PHOTOGRAPH IS HEADED IN THE DIRECTION OF THE RACE FOR THE RUN TO JERICHO.

and southern part of Long Island, the larger portion of it is in the northern part, where the country is far more broken. The ruggedness of Roslyn, Locust Valley and Oyster Bay is avoided, and there are no hills which the racers will not take on high gear, but nevertheless there are numerous short

fact even the villages are scarcely more than clusters of a dozen houses or so. There are only two railroad crossings, both of them on the Oyster Bay branch, which is traversed at Mineola and Albertson.

As a direct result of the avoidance of towns it follows that a large portion of the

country it results also that the roads in many cases are winding rather than straight. This includes all the sections running north and south, and also the east and west section between Lake Success and Albertson. On the other hand, the section between Greenvale and East Norwich is fairly wide,

and has long, straight stretches, which will make it possible, although difficult, for one car to pass another; and of course the well-known Jericho turnpike (used in the race last year), which is followed for the larger portion of its length, is a splendid road for any sort of speed competition.

Although the course is described, in the application for the race permit, in a manner that would lead one to suppose that the racers would follow it in a counter-clockwise direction, it seems reasonable to believe that customary usage will be adhered to by sending the racers around in such a direction that the operator will be toward the inside of the turns, which, with few exceptions, will be right hand turns this year, as last.

The course may be reached from New York by way of Flushing and Douglaston, which brings the tourist to the sharp turn just north of Lake Success; or by going down to Jamaica by way of Hoffman Boulevard and Hillside Avenue, and thence through Queens to New Hyde Park. At present the road through Queens is undergoing much needed repairs, so that the other road would be preferable during July and the early part of August. Later on, however, there will be little choice. Coming out to Flushing, one has to traverse several miles of uncomfortable Belgian block pavements before reaching the macadamized portion of Jackson avenue. On the other hand, this route is shorter.

The following description starts from the Hyde Park turn on Jericho Turnpike. This turn is reached about 2 1-2 miles from Queens, and is marked on the right (going east) by two roadhouses, which, with their sheds, are painted a light yellow. The second has a sign over it marked "Wm. Hausch." At this point the "Lakeville Road" strikes approximately north-north-west, making an angle of more than 90 degrees with the turnpike, and consequently affording a very easy turn for the racers. The Lakeville road is unmarked at this point by telephone poles, and is flanked by cultivated fields, which a little further north are alternated with groups of trees. The road is macadam, with a thin sprinkling of sand on the surface. It is smooth and narrow, and fairly straight for a quarter of a mile. The remainder of the road is much more winding than the map indicates, though none of the turns is very sharp. It is, however, frequently impossible to see more than a hundred feet ahead. The width of the traveled part of the road is not more than 18 feet, and here, as is the case with most of the narrow roads, the ditches are quite shallow, a feature partly explained by the undulating character of the country, which allows the water to run off freely.

Lake Success is approached by an easy ascent on the left. Immediately before reaching it is the new country place of W. K. Vanderbilt, Jr. It covers a number of acres, and in its center is a rather abrupt

knoll sparsely covered with trees. A high iron fence surrounds the property. Lake Success, a tiny body of water bordered by trees, is passed immediately on the left. The Vanderbilt estate entirely surrounds it, except for one approach from the road forming a part of the course. This approach is public, and Mr. Vanderbilt has endeavored unsuccessfully to purchase it from the township of North Hempstead. The lake is fed by springs beneath its surface, and is reported to be exceedingly deep.

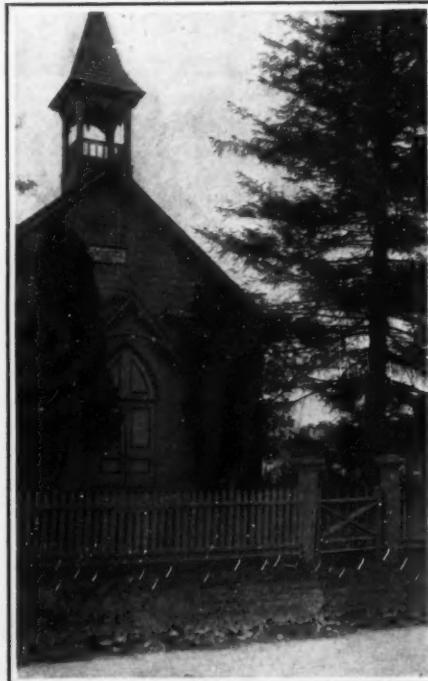
A quarter of a mile beyond the lake is an exceedingly sharp right turn of less than 90 degrees. It is marked by the Lakeville Hotel, a sand-colored frame structure, fac-

on the church bears the date 1788, and the little graveyard adjoining has a tombstone dated 1815, and another so old that the face is entirely gone. It is about three miles from Lake Success to this point. There is not even a village here; only two or three farm houses.

A third of a mile beyond this is a peculiar offset in the road which is marked by a grassy triangle, in the center of which is a very large telephone pole with many wires. Large pine trees border the little triangle, and in the center there is a fine horsechestnut tree. A stranger in the locality might find it difficult to follow the Vanderbilt course directly, for at this point the course crosses diagonally a north and south road, known as Willis avenue. Willis avenue runs across the island, north to Roslyn and south to Mineola and beyond. Approaching the apex of the triangle on the I. U. Willets road, a slate-colored frame house, shaded by a number of large maples, will be noticed opposite the base of the triangle on the far side of Willis avenue. At the triangle one takes the right turn and runs for a matter of a few rods only southward on Willis avenue, immediately coming to a left turn which is virtually a continuation of the I. U. Willets road, over which we have been traveling. Willis avenue affords a convenient way of reaching the Garden City Hotel, to the south.

Another third of a mile eastward the railroad is crossed at Albertson station. The station itself on the right is a mere shanty, painted dark green, with gravel roof. The railroad crossing is dangerous, because an eight-foot bank on the left prevents one from seeing the approach of trains from the north.

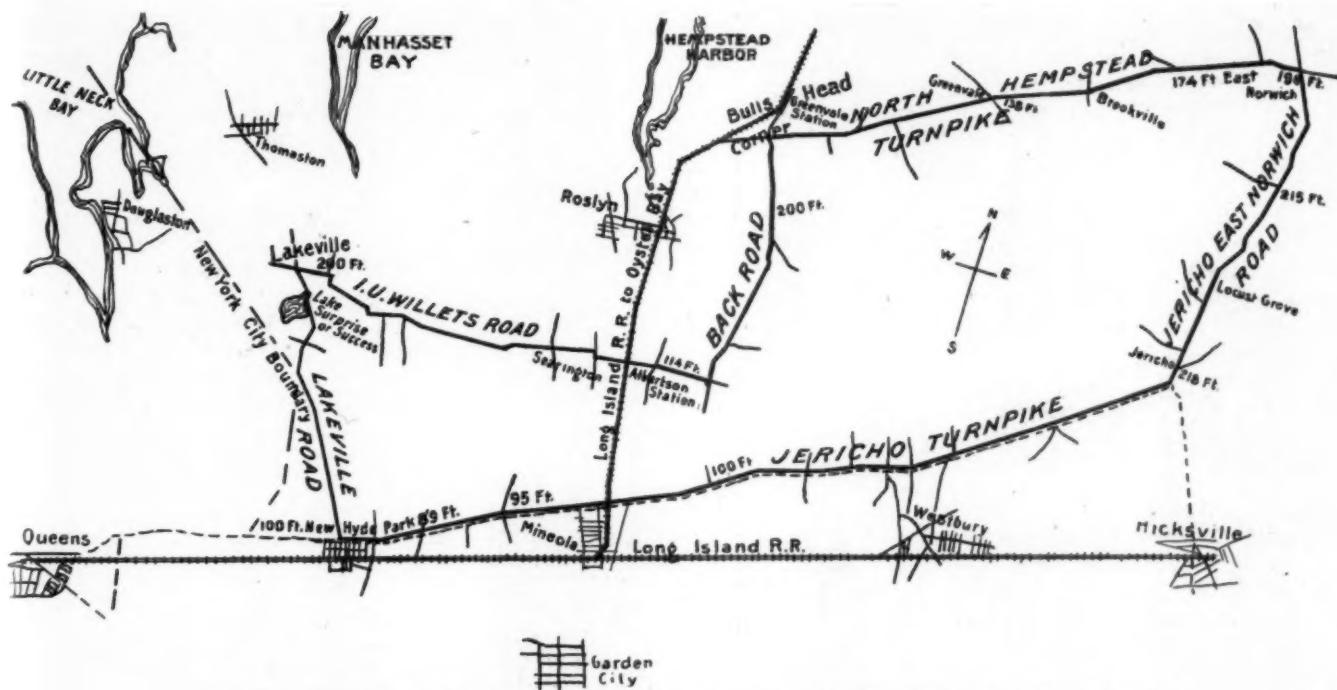
A quarter of a mile beyond is the main north and south road connecting Roslyn and Mineola. The road crossing is flanked by high banks which prevent any view of approaching traffic on the Roslyn-Mineola road and there is a great liability of accident here unless a machine going over the course is kept well in hand. From this point for three-quarters of a mile to the next crossing the road is very sandy and apparently has no macadam foundation. It is only 12 feet wide in the clear. The turn north to Greenvale, into what is styled as the "Back Road" in the permit, is the second turn beyond the railroad. The road approaching the turn is quite wide, but has never been surfaced, and in the center is overgrown with weeds—the right hand portion of the road is in bad condition. From this point there is a beautiful view ahead in the distance, the narrow white road cutting a path through a dense woods, giving a curious canyon effect. The left turn is made long before reaching this "canyon," however, and it is quite abrupt and not distinguishable until one is close to it. Under present conditions the turn is dangerous, but it would be easy to cut down the weeds and surface the entire width of the road, so as to make the turn safe for high speeds.



A Vanderbilt Course Landmark—Methodist Episcopal Church by the Roadside Near Searington, Built Over 100 Years Ago.

ing south on the west side of the road into which the turn is made. The road surface here is mostly soft sand, and the turn must be made very slowly. A quarter of a mile beyond is another right turn into the I. U. Willets road, which almost immediately swings to the left and runs east with many turns. At this point is a fairly steep descent for about a quarter of a mile. The country is quite broken, and some fine groves of old trees are passed. The road is very narrow and it would be impossible to pass here unless one were going quite slowly. The road is marked by a line of high telephone poles. It is flanked by pasture land and fields, with one or two distant views and a series of easy descents leads one to the comparatively straight road to Searington. The surface is still sandy and narrow, but it is smooth.

Searington is identified mainly by an old and weatherbeaten frame church on the left, just beyond a large red barn. A plate



SKETCH MAP OF THE VANDERBILT CUP COURSE ON LONG ISLAND SELECTED FOR THE 1905 RACE.  
Note.—The Jericho Turnpike Formed Part of the Course Used Last Year. The 1905 Course is Approximately 29 Miles.

The Back road from this point north to Greenvale is fairly sandy, but better than the portion immediately preceding. It winds considerably and is crossed by two or three roads in the 21-2 or three miles before Greenvale is reached. At one of these crossings one might, if incautious, take the wrong turn, owing to the angle at which the roads intersect. It is about midway between Albertson and Greenvale, and is marked by a

small white house on the farther side. Here the correct road bears slightly to the left and is crossed at right angles by another road which runs west direct to Roslyn. The correct road has a road sign reading "Glen Cove 5 miles." Just beyond this point the road passes a large estate on the left bordered by a white fence and a thick hedge. The road here passes between Harbor Hill on the left and Wheatley Hill on

the right. These hills are hardly distinguishable as hills from the road, although Harbor Hill is the highest point on Long Island.

Approaching Greenvale one passes several white frame houses on the left close to the road, and directly at the turn a road house painted light green. Here the road is crossed by the direct road connecting Roslyn and East Norwich, into which a sharp



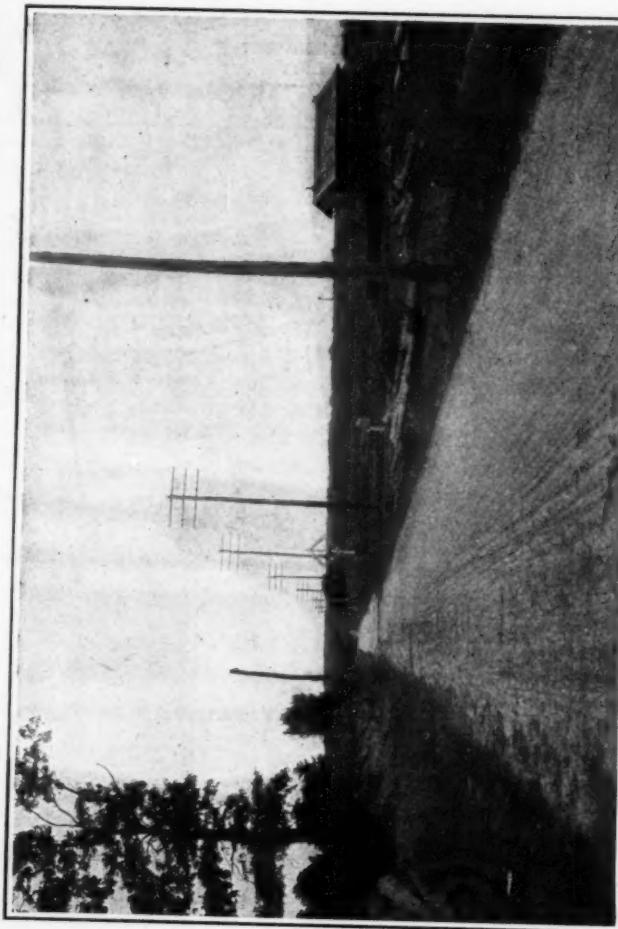
LAKE SURPRISE, OR SUCCESS, LYING PARTLY WITHIN THE W. K. VANDERBILT, JR., ESTATE AND BORDERING ON COURSE.

## THE AUTOMOBILE.

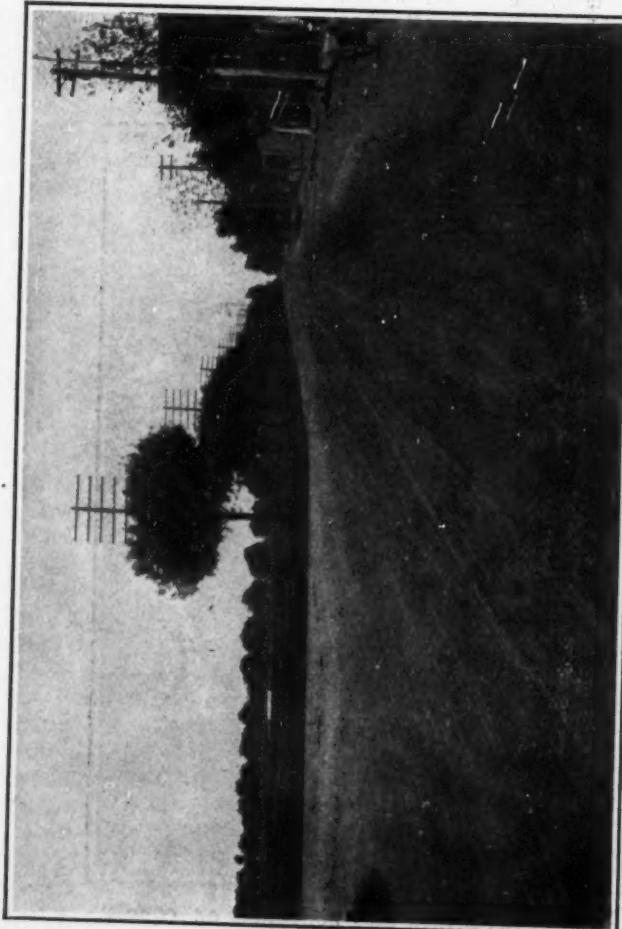
August 3, 1905.



Little Triangle Which Marks Willis Avenue as It Is Approached on the I. U. Willets Road—The Course Turns to the Right.



Approaching the Grade Crossing of the Oyster Bay Branch of the Long Island Railroad at Albertson Station on the I. U. Willets Road.



Looking Northeast on the Jericho Turnpike at Its Junction with the Lakeville Road into Which the Cars Turn "Right."

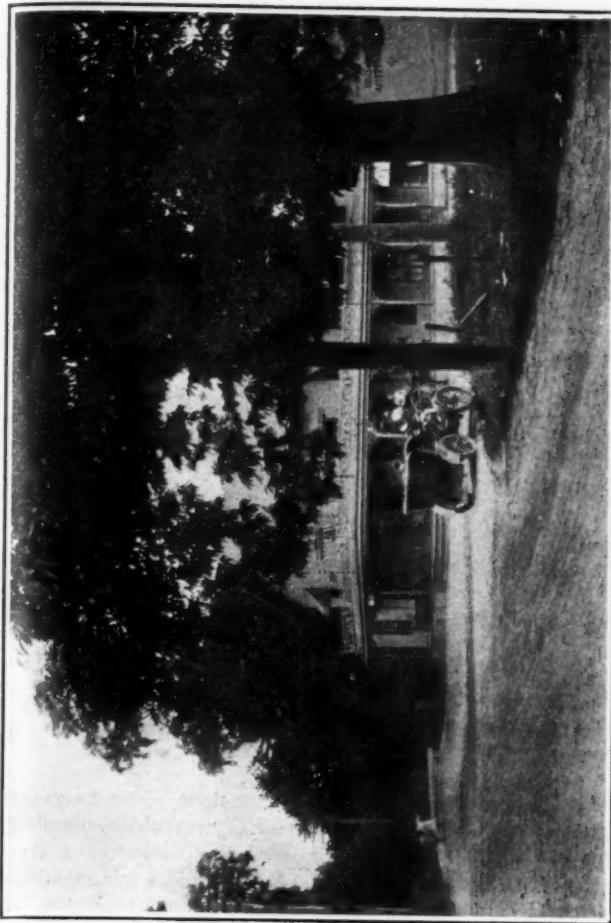


Looking East Across Willis Avenue (North and South Road) at the "Jog" in the Course—Note Car is Turning "Left" into Continuation of the I. U. Willets Road.

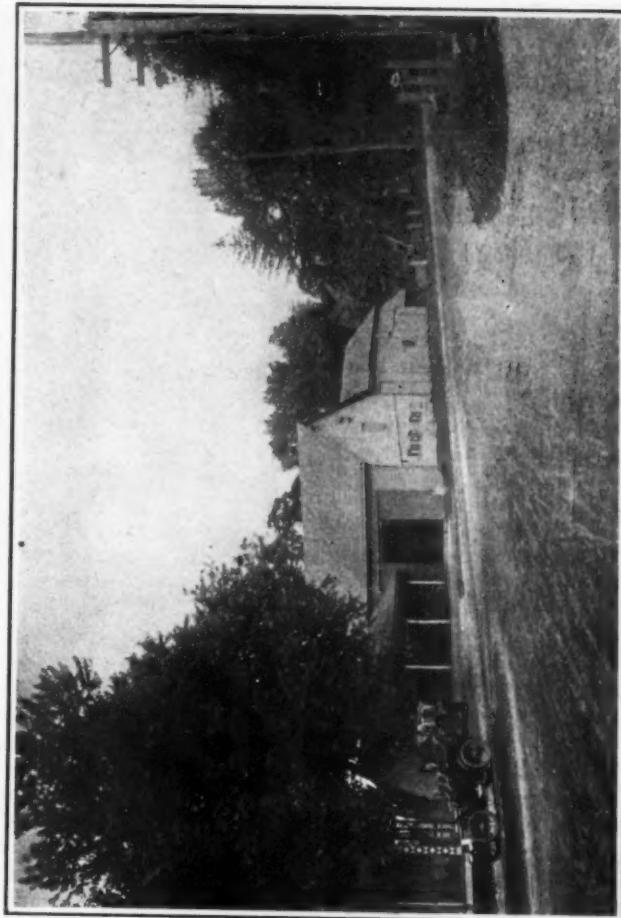
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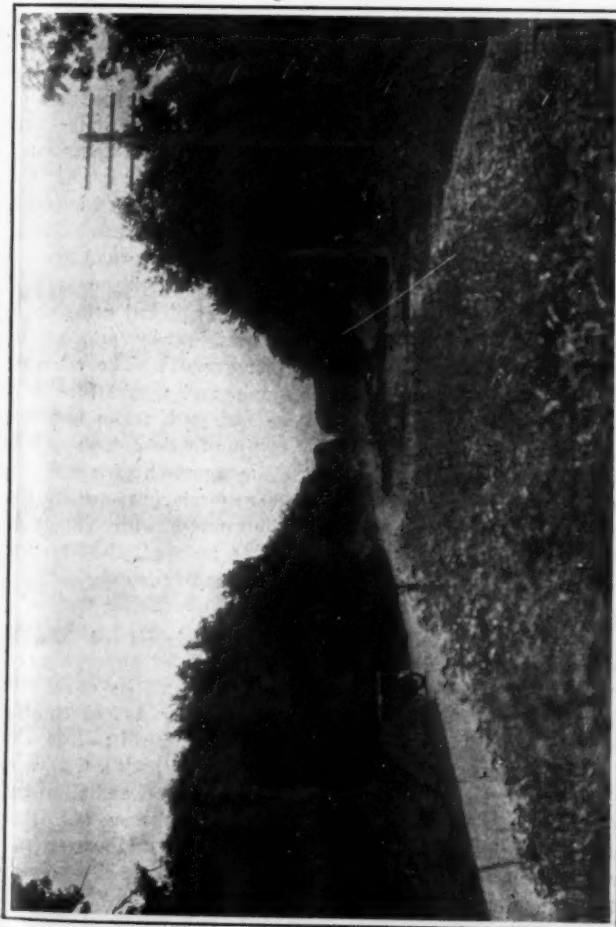
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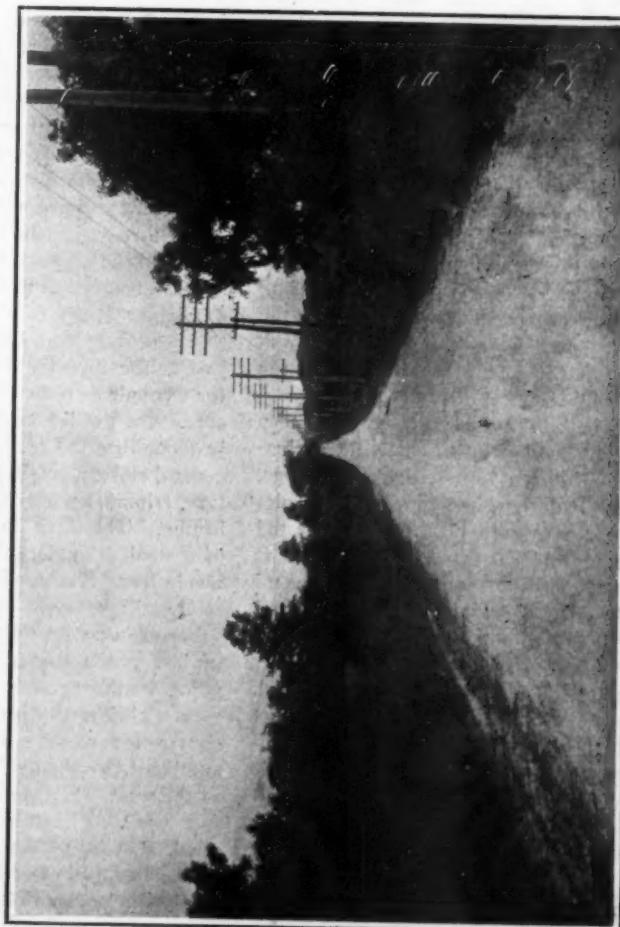
Bull's Head Hotel Which Marks the Turn from the "Back Road" into the North Hempstead Turnpike—  
Note Car Is Making the Turn.



Looking Backward at the Approach to the Jericho Turn—Note Car in Foreground Is on the Course and  
Headed for Jericho Turnpike.



Car Making Left Turn from I. U. Willets Road into the "Back Road"—Note Center of Course Overgrown  
with Weeds.



"Looking Backward at a Clear Straightaway Stretch on the Narrow North Hempstead Turnpike.  
PHOTOGRAPHS ALONG THE NEW SECTIONS OF THE VANDERBILT CUP COURSE FOR 1905 SHOWING LANDMARKS AND THE PRINCIPAL CORNERS TO BE NEGOTIATED BY THE DRIVERS.



APPROACHING ONE OF THE MANY BENDS ON THE LAKEVILLE ROAD—THE W. K. VANDERBILT, JR., ESTATE IS INCLOSED BY THE IRON FENCE SEEN ON THE LEFT—THE ROAD IS MORE SINUOUS THAN THE MAP INDICATES.

right turn is made. On the farther right hand side, when approaching the turn, the Bull's Head Hotel is seen, a comparatively new building, painted a slate green and having its name conspicuously displayed on the hotel shed. The width available for turning is a scant 25 feet. The surface is macadam and a little sandy. The course is now along the North Hempstead Turnpike.

From Greenvale nearly to East Norwich the road is about 20 feet wide, and is oiled along the center. It affords the best going of any portion of the course thus far described, and is nearly straight but quite hilly. About three miles from the turn at the Bull's Head Hotel one crosses a road running northwest to Glen Cove and southwest to Jericho. Just beyond the crossing is a wagon repair shop on the right, the sign over which bears the name of Frank Smith. On the left, at the corner, is the Nassau road house.

A mile beyond one goes down a very steep but straight descent into Brookville, a cluster of a half dozen houses, shaded by large, old trees. It derives its name from a runlet too inconsiderable to place on the United States topographical maps. Just beyond is an almost equally steep ascent, beyond which the road undulates through fields and occasional groves for two miles or more to East Norwich.

The approach to the turn at East Norwich is bordered for some distance by houses set in shade trees, and the turn itself is indicated by the sawed-off stump of a flagpole in a grassy plot directly in front, on the left hand side, as one approaches the turn. The north and south road here (known locally as the Jericho East Norwich road) is the main road from Oyster Bay on the north to

Massapequa on the south, and the road by which the turn is approached goes straight ahead up a short, steep hill beyond the crossing. On the right, in the angle of the turn, is the Post-office, and opposite it is a hotel. On the left hand, just as one takes the turn, is an undertaking establishment. About 25 feet is the width available for the turn.

From East Norwich to Jericho the road is of medium width and quite sandy. It is bordered by more houses than have previously been met with, and is crossed several times. The surface is macadam, in excellent condition. The distance to Jericho is between four and five miles.

The turn at Jericho is marked by Powell's Hotel, in the angle of the turn. It is yellow and the trimmings of a darker color, and is a popular "port of call" for automobilist tourists. The grade is downward here, and just at the turn the descent is quite abrupt for a couple of rods. The turn is easy, however. On the left of the direct south road just opposite the turn is the post-office and general store, a small, greenish-yellow structure, trimmed with red, and much weather-beaten. The turn itself forms one angle of a small triangle, in which stands a small maple tree. The road here is 13 feet in the clear.

We are now on the Jericho turnpike, part of last year's course, though we are now going in the reverse direction of the 1904 race. This is the best portion of the new course for speed. The direction here is southeast, gradually bearing slightly more to the west. The road is level and about 24 feet wide. The macadam surface is very good. Owing to the fact that there are no grades to speak of after the first half mile or so, the ditches are quite pronounced, and one

could not turn into them without accident. The road is at first unmarked by telephone poles, but toward the western end these poles are found. There is a fair sprinkling of houses and farms along the turnpike, but no definite settlement till one approaches Mineola.

At Westbury, about midway between Jericho and Mineola, one passes the old pump on the left hand side, near which it was at first proposed to start the race of last year. On the Jericho turnpike one leaves altogether the undulating country through which the major portion of the course lies and the road is flanked by farm lands with only occasional trees. There are no marked features in the road beyond its complete adaptability to high speed. The second and only other railroad crossing is approached by a straightaway, and can be seen for some distance off. The crossing itself is quite rough, and would furnish a severe test to the springs if taken fast, but there is plenty of time to slow down for it, and also to note the approach of trains.

From here the general character of the course remains the same until the village of New Hyde Park is reached, the starting point of this description of the course.

Three prominent citizens of Lowell, Mass., were recently injured in a most peculiar automobile accident. In endeavoring to avoid running over a fool rooster who thought the road belonged to him, the driver turned his car and struck a telegraph pole. The pole was broken off and all of the occupants of the car were thrown out, fracturing the driver's skull. However, no damage was inflicted on the fowl.—*Minneapolis (Minn.) Journal*.

## Experience with a Second-Hand Runabout.

By R. E. PEARS.

EVERY owner of a low-powered automobile has probably wished at times that his motor was just a little more powerful; that he could take more grades on the high gear and make a little better time on the level. The desire for more power is likely to be especially pronounced when a hill is encountered which is just a trifle too steep for the high gear—when a slight increase in power would be sufficient to keep the machine going without having to drop back to the hill-climbing gear and crawl up with the motor racing.

As might be expected, many attempts have been made by owners to attain the desired result by alterations in the engine, and the consequences are varied. Many altered cars are running better than they did originally, and the owners are satisfied with a slight improvement. Other owners, who found that there were still other hills that were too much for the high gear after the "improvement," have carried the power-increasing idea beyond the limit, and are now very good friends of the repairmen.

An excellent illustration of this is furnished by the experience of a man who, after an unsatisfactory experience with a broken-down second-hand steam car that had been sold to him as being in first-class condition, acquired a 4 1-2-horsepower gasoline runabout which, though a good deal the worse for hard usage and neglect, was in good condition as far as the vital parts were concerned. The new owner was not only of a mechanical turn of mind, but also something of a practical mechanic. Before the arrival of his gasoline machine he made a thorough study of all the literature he could find bearing on that particular type of car, and interviewed repairmen and owners whenever the opportunity offered. Consequently he was well prepared to handle the car intelligently from the very first, although he had never touched a gasoline motor before.

After driving the car from the railroad station, and a few miles over the roads in the neighborhood of his home to become somewhat acquainted with the peculiarities of the machine, the owner spent many evenings investigating minutely the condition of the machinery, and it was not long before he was thoroughly master of the situation.

Evidently the first owner had been very careless, for the bearings of the road wheels were badly worn and there was a general looseness and lack of adjustment throughout the mechanism. Most of these things were soon set right, and the car was again on the road, running much better than when it first arrived.

The owner was, of course, delighted. "It was simply great," he said. "I didn't know the first thing about a gasoline motor until I got my runabout, but I was willing to

take all sorts of chances on its being better than the old kettle I was bamboozled into buying because I was too green to know a bad thing when I sat in it with a man from the shop driving it and breaking his neck to make it go on the level. I spent a lot of good hard cash on the old steamer and finally got it into pretty good shape; but the first few months had left an indelible impression, and I disposed of the machine and got the single-cylinder runabout. I have never regretted the change.

"My greatest pleasure, next to driving the machine, was in getting intimately acquainted with its details. I got the thing running to perfection—smoothly and regularly. The whole machine was always in the best possible condition, and if any little thing went wrong I soon traced it up and set it right. I never let anything run that was not quite right, and as a result the motor seemed to run better and better the longer I used it. There were lots of little things I did that added to the comfort and convenience of handling the car, nearly all insignificant in themselves, but in the aggregate they amounted to a good deal. I never did anything without a good reason for doing it, so the car got to the top notch and stayed there, but I wasn't satisfied then because I couldn't make her any better.

"One day I met a man who had a car of the same make as mine, and of the same model, who told me he had succeeded in increasing the power of his motor about 25 per cent. by the use of special cams for operating the valves. Now, this seemed to be just what I wanted, so after satisfying myself by actual observation that his car was much more powerful than mine, I ordered a similar arrangement and put it on the machine.

"The change consisted in using cams that gave the valves a quicker and wider opening, held them open wide and closed them very quickly. I put on the new cams and adjusted everything as nearly right as I could and turned the crank expectantly. The very first explosion was a 'corker,' and after the motor got to running I could readily see that the explosions were a good deal stronger than they were with the old arrangement. When I got out on the road the difference was simply astonishing. The little hills didn't seem to make any difference at all, and the bigger ones that used to require the low gear were climbed on the high at good speed. The old mill would pump along on the level at a rate that almost scared me. The vibration was slightly increased, but I was willing to let that pass, for I had plenty of power now. I had a dos-a-dos seat on the machine, and I often took the car up pretty stiff grades for such a little car on the high gear with four people on board. It was when doing such work as this, however, that I began to

wonder if the increased power was altogether a good thing; for when the motor speed was pulled down I could feel the tremendous kick of each explosion and get an idea of the strain that was being put on the parts. I believe the little old 4 1-2-horsepower single-cylinder worked up to as much as 6 horsepower. She used a little more gasoline than before and the motor had a tendency to get hot if everything was not just right; but I had no trouble, because I kept everything in good shape.

"One day, not many weeks after I had put on the new cams, I was running along on a level road at a good gait, with the motor working beautifully and everything lovely, when I felt a sudden jerk from the interior, and this was immediately followed by a confused grinding and thumping. I shut off the motor instantly, and as soon as the car stopped I got out with a sinking heart, for I knew it was something serious. And it was. The crankshaft was broken clean off on the flywheel side, just outside the main bearing, and the flywheel and everything else on the projecting end of the shaft had dropped several inches. Things were all out of line and they looked to me to be infinitely worse than they were. I felt as if I was at my own funeral when a repair man, for whom I telephoned, towed the machine to his shop. I said nothing to him about the valve gear. When the shaft had been taken out it was seen that there was a small flaw in it, not a very serious defect, but still a flaw. That put me in better spirits, for I thought that, after all, the shaft was an imperfect one, and would have held on all right, notwithstanding the hard kicking of the motor, had it been perfect.

"A new shaft was ordered from the factory and put in; and at the same time I had some new gears put in the planetary transmission; the old ones were pretty badly worn through having been run dry, judging from appearances, since the original oiling had become exhausted. The machine ran better than ever after the work had been done, and during the rest of the season—this happened late in the summer of 1904—I had nothing but the greatest pleasure with my little car. I kept it running until the weather became so disagreeable that it made riding unpleasant; and then I went to work and dismantled the whole machine, from top to bottom and from end to end. I took off everything that would come off, and there was not a piece of metal in the whole machine that did not receive an almost microscopic examination. I found a few little things that wanted renewing, and more that needed a little attention and fixing up; but on the whole things were in remarkably good shape.

"When, toward spring, I put the machine together, it was, as far as I could judge, almost as good as a new one. I put new bearings in the wheels; got an improved carburetor; screwed on a cylinder oil-cup of large size; put on a new and better ignition timer; and closely and carefully took

up all adjustable parts and made everything tight and snug. The engine had always been a good one; the compression was so good that it could not have been improved; the valves were in excellent condition, and did not even need grinding in. So when I got on the road in the spring I felt almost as if I had a new machine. I went at the hills on the high gear, and toted around four people and worked the old machine pretty hard without the slightest indication of trouble until a couple of weeks ago.

"One day, however, I noticed a slight thump, thump, thump, and then for the first time found myself up against a 'bug' that I could not catch. I ran the machine for a few days, the bump getting worse, and then noticed that the engine was losing power slightly and that it was very hard to turn it over when starting. I became suspicious, and the next day took the machine to the repair shop to be examined. I was just in time, for when I stopped the motor at the shop it did not spin around and come to a gradual stop, as usual, but stopped suddenly, with a stiff jerk that shook the whole car.

"To make a long story short, the shaft was bent and there was a crack at the point where the bend occurred; doubtless it was just getting ready to let go. Of course, there was nothing to do but get another new shaft put in. While waiting for the job to be finished, I have been doing some thinking.

"That new cam is at the bottom of the whole trouble. It is very nice to be able to run up a stiff hill on the high gear, but when the engine slows down the strain thrown on the shaft at each explosion is enormous, and the shaft was never meant to stand it. It's a wonder that it didn't give way long before. Running the motor fast is all right, because the load does not get a chance to accumulate between explosions. Anyway, what's the use of rushing up a hill? Perhaps I save five minutes on a long, stiff grade; and in a year it might amount to a total of three or four hours saved. Add to that a little natural pride, and that's all there is to it. On the other hand, there's the cost of two new crankshafts and the loss of the use of the car while they were being put in. Come to figure it up, I don't believe the game is worth the candle. I'm going to be very sparing with my high gear after this on steep hills. The valve gear is all right, and it can stay the way it is; but I'm going to handle her carefully so as to avoid straining the crankshaft by doing unnecessary stunts.

"With proper care and the renewal of small parts occasionally, I believe my machine will last for years; I don't like to guess how many. Mine has been used continually for three years. Half of that time it was badly used and neglected by the first owner, and half the time it was properly taken care of, if the crankshaft incidents are left out. But the engine is as good as new, and does not show the slightest sign

of giving out. I can't see any reason why even a low-priced runabout should not last almost indefinitely with proper attention. But on the other hand, there is nothing that will show the result of downright abuse quicker than an automobile, and as more cars seem to get abuse than are well taken care of, they get a worse reputation than they deserve."

### Interesting French Clutch.

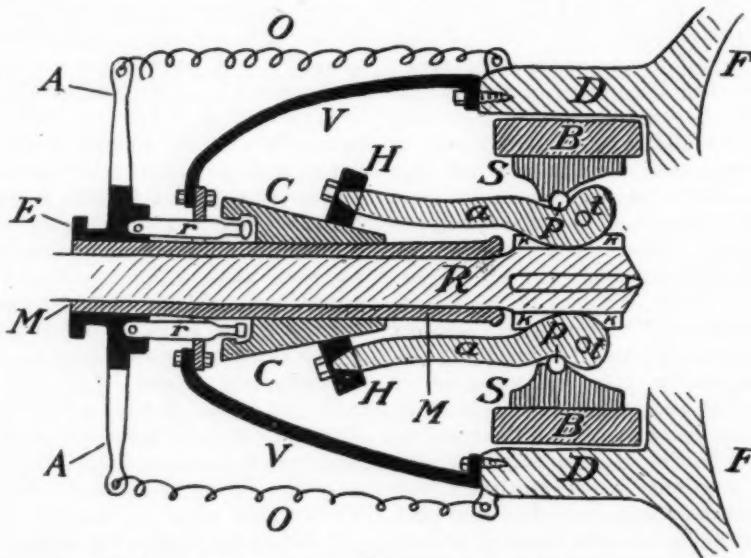
European engineers have of late given much attention to a new clutch system brought out by Professor Herisson. While the clutch has been tested on machinery of all kinds, and proved to be practical in operation, its application to the automobile is, of course, of the greatest present interest.

The clutch is perhaps the most delicate member of the mechanical equipment of the modern automobile, one of the great disadvantages of the usual leather-faced form being that progressive, smooth en-

looked in low-powered cars, they become very serious in cars of high power, and are a positive nuisance, if nothing worse, on racing machines, in which they cause an immense amount of trouble. The statistics given in THE AUTOMOBILE following the Paris automobile show indicate a considerable decrease in the use of leather-faced clutches, as the reader will doubtless have observed.

The apparatus here described was brought to the attention of the French Academy of Science by M. Leaute. It not only overcomes the defects just referred to, but also embodies a number of advantageous features of its own. This clutch system makes unnecessary the delicate adjustment which is essential to the proper operation of a leather-faced clutch; and the smooth, progressive action in taking up the driving strain makes it possible to use a comparatively small margin of safety in calculating the strength of the parts.

Referring to the engraving, *F F* is the engine flywheel, *D D* is a drum formed in-



LONGITUDINAL SECTION OF HERISSON EXPANDING METAL-TO-METAL CLUTCH.

gagement can be obtained only by allowing the clutch to slip as it is thrown in; and this friction inevitably tends to destroy the leather, and so disturb the fine adjustment of the clutch. The diameter of the leather clutch is necessarily quite large, even when the power transmitted is small, and this makes it difficult to provide a flywheel with fan-blade spokes to create a draught and so assist the cooling of the radiator—a practice which is gaining in favor. The inertia of the driven member is necessarily great, and when the clutch is disengaged its momentum keeps the gears in rapid motion and speed changes are rendered difficult, especially for the unskilled, and the motion is destructive to the gears. The thrust of the clutch spring is frequently difficult to take care of, and causes much wear in the bearings of the crankshaft and of the primary gearshaft.

While these disadvantages might be over-

tegral with the wheel, and ground truly cylindrical inside. A ring, *B B*, of cast iron of special quality is split at one point like a big piston ring; normally this ring is smaller than the drum, which it does not touch unless caused to expand. Two shoes, *S S*, bear against the inner surface of the ring and serve to expand it when they are pressed outward. This is accomplished by the arms *a a*, which are pivoted at *t t* and exert pressure upon the shoes *S S* through the hardened steel rollers *p p*. The arms *a a* rotate with the primary transmission shaft *R*, resting in slots or keyways, *k k k*, cut in the enlarged end of the shaft. The long ends of these arms are fitted with hardened steel rollers *H H*, and may be pressed apart by the cone *C C*, which is formed of four independent wedges slidably keyed on the sleeve *M*. The sleeve runs loosely on shaft *R*, but always revolves with the flywheel, being joined rigidly to it by

the casing *V V* bolted to the flywheel and to a flange on the sleeve, as the engraving shows. Four push rods, two of which are seen in the engraving at *r r*, pass through and are guided by holes in the flange on the sleeve. These push rods are moved by a clutch collar *E*, operated by a fork in the usual way. Cavities are cut in the wedges to receive the heads formed on the ends of the push rods, the heads fitting loosely into the cavities. A small spring in each cavity (not shown in the illustration) keeps the push rod head clear of the wall of its cavity when no pressure is being applied to it through the collar. Four arms, two of which are seen at *A A*, are formed integral with the collar, and carry at their extremities the ends of tension springs *O O*, the tendency of which is, of course, to keep the clutch in engagement.

Supposing now that the engine is running and that the clutch pedal is depressed; the system now runs idle. But release the pedal, as suddenly as you please, and, impelled by the springs acting through the pushrods, the cone is moved forward until two of its wedges are stopped by the rollers *H H*; while the other two wedges continue to advance until the small springs which keep the push-rods clear of the walls of their cavities close up. It will be seen that the two wedges not in contact with the rollers have advanced a little further than the other two, and thus form a sort of step which the rollers must climb as the cone rotates. The instant the rollers leave the two wedges with which they first came into contact, these wedges are free to move forward, in their turn, as far as the little springs permit, and thus another step is formed, upon which the rollers must climb; and so the progressive action goes on, each little step forcing the arms, and consequently the shoes *S S*, further apart and bringing the ring *B B* into closer contact with the drum *D D*. The forward movement of the cone wedges must continue as long as there is any slipping; when the slipping ceases the cone and the flywheel will be running at exactly the same speed; but should any slip occur, the rollers will always find a pair of wedges slightly advanced and forming a little step to tighten up the friction band a little more, until slipping stops. The clutch is thus self-adjusting while running, automatically taking care of any slipping that occurs.

Suppose the play allowed the push-rods in their cavities is 1-20th of an inch; then, when the rollers come in contact with one pair of wedges, the other pair will move forward 1-20 of an inch before stopping, and the cone as a whole will advance 1-10 of an inch for every half revolution it makes. If the total length of travel allowed before absolute drive takes place is two inches, it will take ten complete revolutions of the flywheel, relative to the shaft *R*, to produce absolute drive. The rapidity with which the clutch engages is determined by the designer when he figures the

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extent of each step; and once this is set, the clutch cannot be altered except by removing metal from the heads of the push rods to increase their play in the wedges. The tension of the springs is a matter of indifference so long as it is sufficiently strong to overcome the friction of the different sliding parts and the thrust of the rollers as they mount the wedges.

A clutch of this system was seen by the writer at the works. It was used as a coupling between a dynamo and an electric motor. Its extreme diameter was seven and a quarter inches, and it transmitted 30-horsepower at 150 revolutions a minute, this figuring out at 300-horsepower transmitted at 1,500 revolutions a minute—the normal speed of many automobile motors.

The advantages of this clutch system may be summarized as follows: The ability to transmit power is limited only by the actual resistance of the parts, the clutch gripping tighter and tighter until slippage is stopped; small diameter, making it easy to place in the car without interfering with other parts; small inertia on account of its small size and light weight, and the consequent absence of ill effect on the gears; entire absence of end thrust at all times.

### Road Work in Rhode Island.

Twenty pieces of state road, from half a mile to two miles in length and fourteen to thirty-two feet wide, were macadamized in the little state of Rhode Island during the year 1904, at a total cost of \$79,397. The total mileage of new road, as shown by the third annual report of the State Board of Public Roads for the year 1904, recently issued, is 16.3, and the average contract cost per mile, \$4,953.05.

The total number of miles of state highway in the commonwealth is 249, of which 98.42 miles had been improved up to January, 1905. The standard width of the improved state roads is fourteen feet. A comprehensive plan of improvement of all the state roads was adopted at the January, 1903, session of the General Assembly, and at that time the Board of Public Roads estimated that six years would be required to complete the work, with a total appropriation for the purpose of \$900,000 during the six years. But in the report for last year the board expresses considerable disappointment over the fact that the appropriation of \$125,000, recommended last year, was cut to \$100,000, and points out that with the annual appropriations limited to the latter sum it will require nine years to carry the plan to fulfillment, unless the cost of construction of short stretches of road exceeds the price for larger contracts, in which case it will take longer.

The report, which is brief, should be of interest to automobilists and other good roads' advocates, as it contains useful observations regarding the value of hard roads and suggestions concerning maintenance, is illustrated by forty-seven full-page half-tone

engravings from photographs showing the conditions of the roads before and after improvement, and at the back contains a copy of the blank giving standard state specifications for stone roads.

"Now that the telephone is found in every rural community and the motor car has appeared," says the board in its introductory, "it is not too optimistic to predict that with the completion of the state road system the country towns will become to the city what its immediate suburbs now are, and the country districts will be brought nearer to each other and to their centers of trade, greatly relieving the isolation imposed by poor roads." The report dwells at some length on the "signs of drifting countryward" with the improvement, counteracting the deplored rural depopulation; upon the increase of travel and the increase in property values, and devotes much space to urging the importance of providing for the proper maintenance of roads after they have been reconstructed.

Regarding the influence built upon the minds of the people of the sample stretches of stone roads, the report says, "There is an evident increasing dissatisfaction over the old dirt roads maintained in the old style way, a feeling largely due, no doubt, to the contrast experienced in riding upon a section of new construction after having ridden over a common dirt road, especially at certain seasons of the year, when the dirt road is at its worst. The average man will be content to use in his occupation the tools and machinery of his predecessor until the advantage of his more enterprising neighbor is clearly seen to be due to his use of later inventions."

The board asked for an appropriation of \$150,000 to carry on the work in the year 1905, of which sum \$25,000 was to be made available after January 1, 1906.

### DULUTH CLUB TOUR.

ST. PAUL, July 29.—Word has been received by the St. Paul Automobile Club that the Duluth A. C. plans a tour to the Twin Cities in August. The Duluth club has passed a resolution providing for the trip and directing the committee on good roads to make arrangements. It is probable that the Duluth automobilists will leave the Zenith City Saturday, August 5.

The distance from Duluth to St. Paul by wagon road is 170 miles. The tourists plan to leave Duluth Saturday morning and arrive in Sandstone in the evening, and continue the trip to St. Paul on Sunday.

One of the purposes of the trip is to secure a good roadway from Duluth to the Twin Cities. A chart of the road will be made during the trip to show what improvements are necessary, and the automobile clubs of St. Paul, Minneapolis and Duluth will begin a campaign to secure the improvements desired.

It is expected that about twenty machines will make the trip.

## Taxation of Autos in France.—European Duties.

### Special Correspondence.

**PARIS,** July 14.—The French Government has a direct interest in the increase of mechanical traction. The humble cyclist enriches the Treasury by 6 francs (\$1.20) a year for every machine owned; 12 francs (\$2.40) is paid on every motorcycle having one seat, 24 francs (\$4.80) for a machine with two seats, and 36 francs (\$7.20) for those having three seats. A trailer is counted as part of the motorcycle, the revenue tax increasing with the total number of seats provided.

Automobiles figure more largely in the receipts of *Monsieur le Ministre des Finances*. The industry as a whole pays the *patente*, or trading tax, common to every industry or trade in France, from the garret workshop to the largest factory, and varying with the locality and the nature of the business carried on.

Its rate, however, is so low as to handicap no trader. It is the automobile owner who pays directly into the coffers of the Government. Thus, in Paris, a tax of \$10 a year is levied on every automobile having one or two seats, with in addition \$1 per horsepower or fraction of a horsepower. For automobiles having more than two seats the fixed annual tax is \$18, with \$1 additional per horsepower.

In the provinces the fixed tax is \$8 for a two-seated automobile in towns of more than 40,000 inhabitants, and descends to a minimum of \$4 in towns of 10,000 inhabitants or less. For automobiles with more than two seats the amount is \$15, \$12, \$10 and \$8, according to the population of the town or commune. To this must be added \$1 additional per horsepower.

The owner of a 40-horsepower four-seated automobile in Paris would pay a revenue tax of \$59 a year, composed of the \$18 fixed tax, \$40 for the 40 horsepower, and \$1 prestation tax. If the car should be sold during the course of the year, the amount has to be paid again by the new owner. This measure applies only to Paris, and is a source of some resentment, for it is obviously unjust that the Government should be paid an annual tax several times in the year, because a car has changed owners.

The *prestation* tax is a survival of the ancient road-making tax or *corvée*. In the days when "liberty, equality and fraternity" were unknown, every peasant was obliged to give his services gratuitously for several days' road making. Modified and rendered more equitable, the principle yet remains. Formerly the owner of a horse and cart offered his equipage gratuitously for a certain number of days. Now the personal tax can be paid in money, the owner of an automobile being called upon to contribute at a rate per horsepower of not more than one-third that imposed upon the highest rated animal. The amount varies with circum-

stances and locality; \$1 per year for a 40-horsepower automobile registered in Paris is a generous estimate.

### REGULATIONS FOR CONSTRUCTORS.

In France the control of automobiles is under the direction of the *Service des Mines*, to which body every constructor must submit each type of car for approval. Automobiles are divided into two classes; those not exceeding a speed of 30 kilometers (19 miles) an hour, and those capable of exceeding this limit. The regulations to be observed by builders are very simple and touch only on those points which are necessary to assure the safety of the public. When a type of car has been accepted by the *Service des Mines*, the builder is at liberty to place on the market any number of vehicles of this series, which are accepted and granted a registration plaque on a simple declaration. Steam vehicles are treated differently; every car must be examined separately, tested, and stamped with the official seal before it can be put into circulation.

Vehicles capable of traveling at more than thirty kilometers an hour must carry two plaques, one in front and one behind, of regulation size and color, and consisting of Arabic figures and letters. The letters indicate the geographical department in which the car is registered. Constructors are granted a small number of extra regulation plaques to be used on new cars undergoing trials before being delivered to customers. Curiously enough, agents, who have frequently need of these provisional registration numbers, are not granted this concession.

### EUROPEAN CUSTOMS REGULATIONS.

The customs duty on foreign cars entering France is \$12 per 100 kilos (220 pounds) under the general tariff, and \$10 where a favored nation clause exists. Tourists entering France and making a declaration that their visit is only temporary, are given a receipt for the duties paid, and the amount is refunded if the country is left within a period of twelve months.

Following are the regulations in other European countries:

**GERMANY.**—Customs duty \$2 per 100 kilos for all automobiles. Tourists entering the country pay a duty of \$37.50 for each automobile, regardless of size and weight. This sum is paid and a declaration made on entry, and the amount is repaid at any customs office on leaving the country.

**AUSTRIA.**—Tourists must make a declaration on entering the country, when both motor and car body will be stamped. The duty is refunded on leaving the country and although not absolutely necessary, it is advisable to state, on entering, by what customs office the country will be left.

**BELGIUM.**—Duty is 12 per cent. of the

value of the car, on the owner's declaration. It is advisable not to place the value unreasonably low, as, if not considered sufficient, the authorities have the right to seize the car. For a short stay, a declaration must be made, duties paid, and the amount is refunded on leaving the country.

**DENMARK.**—The formalities are the same as for ordinary merchandise, viz., 4 cents per kilo. (2.2 pounds). Tourists must make a formal declaration that they intend to leave the country after a short stay, when their automobiles will be admitted as ordinary baggage, free of any duty.

**SPAIN.**—Customs duty on the motor \$3.75 per 100 kilos; four-seated car bodies, \$200. Tourists pay the duties on entering, and are reimbursed on leaving the country. In introducing an automobile, the exact weight of the motor must be declared.

**GREAT BRITAIN.**—No duties.

**GREECE.**—Three-wheeled cars pay a customs duty of \$60; four-wheeled cars, \$80. Nothing is specified by the authorities as to temporary admission.

**ITALY.**—Cars with more than two wheels and less than five springs, pay \$22 each. Automobiles having more than two wheels and five or more springs, pay \$66 each. Tourists must make a declaration, their car is sealed, and the amount is returned on leaving the country.

**LUXEMBOURG.**—Custom duty 150 marks (\$37.50) per automobile. Tourists must make written application ten days before entering the country, to the customs officials at Luxembourg. An identification ticket is given on entry and all duties returned on leaving the country.

**NETHERLANDS.**—Customs duty 5 per cent. on declared value. Tourists can enter free if the driver of the car is provided with a permission from the Minister of Public Works.

**PORTUGAL.**—For a complete car the customs duty is about \$77. Tourists pay on entry, but are reimbursed on leaving the country.

**RUSSIA AND FINLAND.**—Two-seated cars pay \$86.50; four-seated cars pay \$126.75. Tourists must pay full duties on entering the country. A receipt will be given on passing the frontier, and if not more than six months are spent in Russia, the amount will be repaid from two to ten months later. A passport is absolutely indispensable.

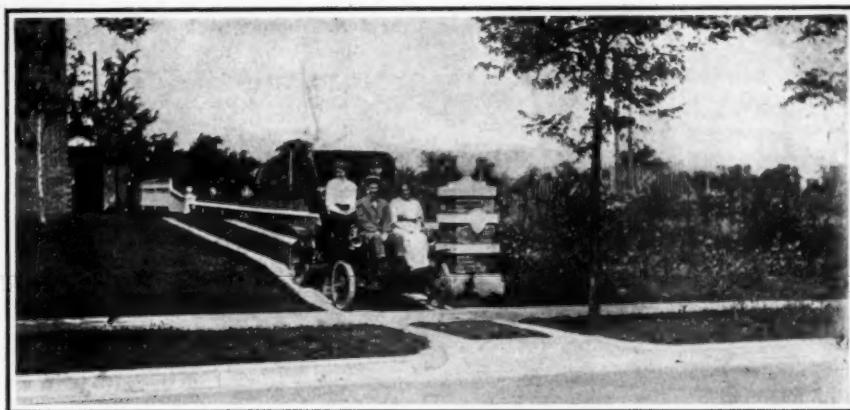
**SWEDEN AND NORWAY.**—Duty is 15 per cent. ad valorem on presentation of the invoice. Tourists' cars are stamped at a cost of 12 cents. A permission is sometimes necessary, costing \$1.04. Fifty per cent. of the value of the car must be deposited (this is calculated on a very lenient scale); and the total amount is repaid on leaving the country.

**SWITZERLAND.**—Custom duty, \$4 per 100 kilos on tare weight of car. If exact weight of motor is certified by builder, the tax is 80 cents per 100 kilos. Tourists pay duties, which are repaid on leaving within a period of six months.

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MERRILL'S "GRANITOID" HORSELESS DRIVEWAY IN KANSAS CITY.

**TURKEY.**—A duty of 8 per cent. is collected, of which 2 per cent. will be refunded upon leaving country. An excessively high assessment should be guarded against.

It is sometimes necessary, and always advisable, to have an authentic description of the automobile, weight, number, etc., signed or stamped by the manufacturer, to be presented at the frontier or elsewhere. Previous notice to customs officials as to entering or leaving a country will facilitate matters in many cases.

**ROUMANIA.**—Duties are according to a special tariff. Deposit will be refunded when machine is taken from the country. Previous notice is advisable.

### A Horseless Driveway.

The "horseless driveway," illustrated in the accompanying engraving, is one of the innovations that has marked the retirement

of the horse from the stables of F. C. Merrill, of Kansas City. In place of the old

gravel driveway, which Mr. Merrill considered a disfigurement, two strips of "Granitoid," each sixteen inches wide, have been laid from the automobile house to the road, being spaced so as to take the wheels of a car, leaving a wide strip of grass between the tracks. It will be seen from the photograph that the "horseless driveway," which is built level with the lawn through which it runs, is anything but unsightly.

### Autos in Muncie.

Muncie, Ind., a city with a population of about 30,000, has more than a hundred automobiles, and the members of the local automobile organization, the Gas Belt Automobile Club, believe their town is proportionately the biggest automobile center in



CAPTAIN STEPHENS' DECORATED CAR IN MUNCIE AUTOMOBILE CLUB PARADE.



During a visit of Mayor Tom L. Johnson, of Cleveland, to Chicago recently, he and Mayor E. F. Dunne, of Chicago—the two municipal ownership mayors—made an inspection of the traction lines of the Windy City, accompanied by Attorney Clarence S. Darrow, counsel for Mayor Dunne. The trip was made in a Winton car, with which Mayor Johnson, who is shown at the wheel in the accompanying engraving, is very familiar, having long been an enthusiastic owner and driver of this make. Chicago's new executive occupies the other front seat, while Mr. Darrow occupies the right-hand seat behind.

the United States. The club was organized four years ago when there were only two or three machines in Muncie. At present there are machines of every American style, from the motorcycle to the finest American car.

An automobile parade was held during the state meeting of the Elks of Indiana in June, and more than forty machines were in line, headed by the appropriately decorated car illustrated herewith. This car was driven by Capt. Jesse A. Stephens, who had charge of the parade. The Elks and their wives were "automobiled" around the city and royally entertained.

Frank Ball is the president of the Gas Belt A. C. and Harold C. R. Wall is secretary-treasurer.

"Snellpaardelooszoondeerspoorwegpit-roolrijtung" is said to be the newest of the names of the automobile, and authorities agree that "Red Rover" and "Drab Devil" and "Blue Blazes" and even "White Whizzes" are outclassed. The unpronounceable is of Flemish derivation, and comes from "snell," which means rapid, "psadeloos," which means horseless; zoondeerspoorweg," meaning without sails, and "pitroolrijtung," which implies that a thing is driven by petroleum.—*Toledo Journal*.

## Home from the Gordon Bennett Race.

**W**HEN the big White Star liner *Celtic* swung into her dock in the North river, New York, last Saturday, she had on board Joseph Tracy and Herbert Lytle, of the American Gordon Bennett team, and the tire experts, besides others in the trade who had gone over as spectators.

In the little group that waved greetings to the waiting friends on the dock were O. E. Schaaf, of the Pope-Toledo interests; Carl Fisher, of Indianapolis; Al Poole, who acted as mechanician on the Locomobile racer, and Clifford Myers, of the Diamond Rubber Co.

Those who had followed the fortunes of the American team in the cable and mail reports were naturally eager to get the personal impressions of the contestants. Questions were put and answered as rapidly as the exhaust of a racing car, until the customs formalities had been finished and the group scattered to resume the humdrum of everyday affairs.

"How does it feel to start in the classic Gordon Bennett?" was asked Joseph Tracy, who piloted Dr. Thomas' Locomobile car in the great event.

After a reflective pause he replied: "It doesn't feel very different from starting in the Vanderbilt or any other road race. Of course, in an international event one realizes he is representing his country, and not merely a particular car, and that his performance will be watched by a great number of people of many different nationalities.

"The fact that the race occurs in a foreign country does not affect one as much as you might suppose, for the reason that you know that if any repairs have to be made you cannot call on any one to assist you outside of your mechanician, who in my case was Mr. Poole.

"Getting your car out in the gray of the morning does not affect you particularly, except that you feel 'out of place' for quite a while. As a matter of fact, you don't feel thoroughly at home until after the car has been started and is well under way."

"What about the feeling of being in competition with drivers of international reputation?" was asked.

"Of course, you do not attempt to hide the fact that you are up against the greatest drivers in the world," he replied; "neither do you try to jolly yourself thinking that you might win by chance. You just know that you have got to fight, and fight against fellows who have been doing this kind of thing for several years."

"Did you get to the Grand Stand before any of the cars had been started?"

"No; three or four cars had been started when we got there. As a matter of fact, we did not come right down to the line. They told me that we would see numbers on the fence corresponding to the numbers on the cars, and that we were to line up opposite my number; but I could not

find any numbers. By the way, after the race some of the French papers printed a statement that we did not get to the starting line on time. This was not so. We came to the line on time. Just as we got down to the line the second car started. We were then but a short distance back. Then the car No. 17 started, and I had five minutes. I then let my car roll down to the starting line."

"What were the surroundings at the starting line?"

"In general they were about the same as at the Vanderbilt race. The scene at the roadside was practically the same, with the usual number of people rushing around, and the usual amount of rumors as to what had happened to the drivers who had started before me. There was about a score of Americans at the start. They crowded around and shook hands, told me to be careful, and not to get 'rattled,' wished me good luck, and such like. Among them were Clarence Grey Dinsmore, Mr. Nelson, of the Pope-Toledo Paris office; Mr. Myers, of the Diamond tire; O. S. Johnson, of the Automobile Club of America; Mr. Thomas, treasurer of the Locomobile company; A. J. Moulton and E. T. Birdsall, of New York, also Mr. Petard, one of THE AUTOMOBILE representatives. There seemed to be a hundred photographers about, and all were busy taking pictures."

"Did you get away without any hitch?"

"Yes, we got away very nicely. I started on the first gear and made a comparatively slow start, owing to the fact that I had only two speeds, my intermediate gear having been broken before the race on my way down from Havre. After starting I probably went about a hundred yards down hill on the low gear, and went into my high gear without any trouble, but it was rather slow in picking up speed, because by that time we were going up hill and it was a big jump from the low to the high."

"Do you think there is any advantage or disadvantage in starting as a late number in such a race?"

"Yes, there is a disadvantage from the fact that the time that must elapse between your starting time and the finish of the race is less than the time of the earlier starters. For instance, seventeen cars started before me, which meant about one hour and thirty minutes, and we had just that much less time to complete the four rounds in. Of course that wouldn't make any difference in the case of a car that met with no mishaps and was fast enough to win."

"How far did you get without any trouble?"

"To Rochefort. We made pretty good time, too, but nothing like the time that we made in the second and third rounds. We had not been around the course in a racing car before, and for that reason did not know

how fast we could take the corners, and they were numerous. There were a lot of bad ones even before reaching Rochefort."

"At Rochefort?" suggestively.

"Well, when we got to Rochefort we were halted for about fifteen seconds while one of the officials put a ticket in our box. After we had started up again, and gone a few hundred yards, we struck a 'hairpin' corner and broke our right-hand chain. We then pulled to one side, and commenced to repair the chain."

"The road here was fairly wide, and Théry passed us going at a pretty good speed. We were laid up with this repair for about twenty minutes. It was really a bolt where the chain was joined together, and this was broken in one of the links, so we had to punch it out. It was rather a nasty job, but we finally got it out and put in the new one."

"After this what happened?"

"We ran on then to just beyond Lastic, where we stopped at our supply station and took a new chain aboard. Then we went on and stopped at the Pontgibaud control just behind the Napier. We were held up four minutes to let this car get clear of the narrow road ahead, but while the officials were solemnly counting off the seconds Earp was just around the corner, out of sight, fixing his gasoline tank, which had come loose. We finished that round without any trouble, and passed the grandstand going about seventy-five miles an hour."

"No, you could not distinguish anything at the stand. Just a blur of faces and waving handkerchiefs back of the fence."

"What happened on the second round?" repeated Mr. Tracy. "Why, at Rochefort, just after leaving the control, the clutch collar seized. First I knew of it, there was a tremendous racket under our feet. That reminds me we had had to take out the floor boards to get the car under the weight, and so my feet were hanging in the air except when they were on the pedals, and toward the end it got pretty tiresome; in fact, after the race stopped I could not walk for a few minutes after getting out of the car."

"But about the clutch collar: When the noise started I tried to stop the car, but couldn't get the clutch out. The throttle had been adjusted so as not to close altogether, and the only way to stop the motor was by the cut-out button on the wheel. I got my finger on the button all right, and almost immediately saw that we had to go around the 'hairpin' corner where we had broken the chain on the previous round. It was impossible to keep my finger on the button, as I had to swing the wheel so much to get around, and every time my finger slipped off the button the motor started up and drove the car ahead. We had an exciting few moments until I got the car into the straight and stopped it just alongside the fence. Our troubles on the corner were aggravated by the action of the

brakes, which I was compelled to jam on tight.

"After stopping we found that the clutch collar had seized, and we effected a temporary repair that enabled us to get the clutch out if needed, but at the risk of altogether disabling the clutch mechanism.

"Afterwards?" Well, I drove the car without drawing the clutch except at the controls—simply using the throttle—when we stopped and started the motor.

"After we got the clutch trouble straightened out we got along very nicely until we came to Lastic, where our supply station was located. Here we decided that, as our right back tire was pretty badly worn, we would have a new one put on, and while the tire was being changed we took on some water and gasoline."

"How did the clutch trouble affect your subsequent driving?"

"It made the driving very difficult, and also compelled me to go much more slowly than I could have done, for the reason that I had to take the corners on the high gear and without drawing the clutch. We got around to the grandstand again, but had considerable trouble coming down the last chain of hills into Clermont on this account. The throttle was adjusted so as to just keep the engine turning over, and usually when a turn was encountered it was too sharp to be taken at the speed the engine would drive the car, even when turning over slowly, so I had to use the cut-out button on the steering wheel. The steering wheel had to be moved so much and so often that my fingers slipped off the button many times, and the motor, of course,

started to run and drive the car at critical points when the speed due to momentum was as high as was safe.

"When we reached the grandstand again I noticed that the stretch of road in front of it was very much cut up. A lot of small stones had worked up to the surface, making steering very unsteady at high speed.

"On the third round we got to the tire control, about one and one-half miles beyond the grandstand. We stopped to put a shoe on, and were then told that the race would end at 4:30 o'clock. It was then about 2 o'clock, so we decided we would put on a complete set of tires, so that we would not have to stop again, as by that time we had gotten to know the course. Then we started out after having bathed our faces with cologne, which was suggested by Mr. Maudsley, of Coventry, and which was very refreshing indeed. Nothing more happened after that. Everything was going fine, even when we got past the hoodoo Rochefton turn, and on to Laqueuille. There they told us that the race was over."

"Did you come back to the grandstand then?"

"No; they would not let me drive back immediately, so we pulled off to one side of the road. One of the men at the control, Mr. Fenton—who is connected, I believe, with the English Gladiator car—gave us some roast chicken and champagne. I never ate so fast in my life. I was ashamed to ask for more. After stopping here for probably half an hour an official came along and informed us that the course was open, and then there was one devil of a stampede to get on the course. All the cars that had

been lined up along the road were driven out on the course. Everybody seemed to get out on the road—thousands of people and hundreds of cars."

"From your own experience, was there much passing or repassing on the road during the race?"

"No, not very much. Some of the French papers stated that the French drivers were blocked by the Americans, but the only French drivers who passed me were Théry and Callois. I had instructed my mechanician to keep a sharp outlook and tell me whenever anyone was overtaking us, so that I could turn out and let him pass. In both instances, when Théry and Callois passed me, the road was fairly wide and I pulled to one side and let them go by. When Théry passed I went after him to see if I could hold him. I found I could do so easily on the straights, but not on the turns.

"We also raced with Burton on the second round. After passing Lastic he went by just before we started, and then we passed and repassed each other several times until we got to the tire control just beyond the Grand Stand, more than halfway round the course. His car was faster than mine, and then he knew the course, and could drive where we could not, as he had all of his gears. We started waving hands at each other toward the finish. We also passed the Napier three or four times, and they also passed us. At one time Burton passed us on a corner. He seemed to be going too fast to get around safely, but by braking he managed to slow down and get around without mishap. I saw pieces of stuff flying off his wheels, which appeared



HAIRPIN CORNER AT ROCHEFORT ON AUVERGNE CIRCUIT WHICH PROVED TO BE A HOODOO FOR THE LOCOMOBILE RACER.

to me to be rubber from his tires. About half a mile further on we passed him putting on a new shoe.

"No," said Mr. Tracy, in reply to an inquiry, "there was no particular danger in passing. The cars were about five feet apart, I should say."

"Did you experience any other troubles?"

"Yes; in the second round the dust began to get underneath my goggles and into my eyes. The dust was not in clouds, but was rather a kind of fine mist. It was hardly visible, but still it was there, and was made very unpleasant by the tar they had put on the road, which gave it a sort of caustic effect. It very much interfered with my sight. On the third round my eyes began to pain me very badly, and after the race, when I got back to the garage, I could hardly see, and had to go to a drug store and get them attended to."

"It was reported that Théry had had his goggles made by an eminent Paris oculist. A man cannot be too particular about his goggles. In a race like this the goggles should be made to order, and particularly made to fit the face. Earp also had trouble with his eyes, and I saw him in London ten days after the race and he was then wearing smoked glasses. It was common talk in Paris that Théry's eyes are ruined as a result of the elimination trials and the Gordon Bennett race."

"How about grub during the race?"

"Well, Poole put some chocolate into my mouth occasionally on straight stretches, and we drank some water while we were fixing the clutch collar in Rochefort."

Asked how his car behaved in general, Mr. Tracy replied:

"The brakes acted finely. I only used the foot brake—hardly ever used the hand brake, except in coming into a control, for the simple reason that I could not know when we were going to strike a corner when one would have to use both hands in steering and wish he had another one in order to swing the wheel about. If the foot brake had given out it would have made our run very much slower. The radiator system and ignition worked perfectly, and the engine did not miss fire a single stroke."

"Was the scrutiny of the officials at the weighing in very close?"

"Yes, very. They inspected everything, counted leaves in the springs and stamped the wheel hubs. One had to answer a whole lot of questions; they had papers to be filled out about the weight of the car, size of the wheels, tires, springs, method of ignition, size of cylinders, kind of carburetor, whether automatic or not, kind of cooling device, the manner in which the engine was oiled, the kind of clutch, and what it was faced with; kind of gear box; how many speeds and brakes. You had to satisfy two lots of inspectors; the government officials had to know if the car was thoroughly safe to go in a race on the public highways, and you had also to satisfy the race officials that the car complied with

the regulations. It took two hours altogether to get through."

"Some of the drivers had spare cars, all of which were weighed in and numbered the same as the cars driven in the race. These spares were provided so that in case anything happened before the race proper they could be substituted."

"How did the Auvergne circuit compare with the Vanderbilt course of 1904?" persisted the inquisitor.

"The Vanderbilt course was child's play compared to it. In the Vanderbilt course turns were the exception, but in the Auvergne the turns were the rule, and one would wonder what was the matter when he came across a straight stretch. There is a great difference between trying to get familiar with a course eighty-five miles long and one only about thirty miles long. With a course like the 1904 Vanderbilt one could afford to be less familiar for several reasons. In the first place, lack of familiarity with the Vanderbilt course would not necessarily mean that it would be dangerous to race over, but would simply mean one would lose a little time on the turns. But with the Auvergne circuit, not knowing it was absolutely dangerous even at low speeds. Another thing is that if you did not know this Auvergne circuit you would lose much more time on it, as there are so many corners, and all sorts of corners, whereas on the Vanderbilt course there were but four turns. The loss of three or four seconds on each of the several hundred corners on the Auvergne circuit would amount to a whole lot of time, and easily lose a man the race. In our own case, even had we experienced no tire or mechanical troubles, we could not have made very fast time in the Gordon Bennett, as I had no experience on the course in a racing car, and the first round, especially, we had simply to feel our way."

"Did you have any chance to let the car out on the way down from Havre?"

"Yes, we had some fine sailing then. The roads were perfect, and there were no obstructions. There was a row of trees on either side of the road, and nearly all the way we did nothing but sit up and let her go. As we ran along at about eighty miles an hour the trees looked like a fence, and when you met a countryman with a wagon he invariably turned out. There were hundreds of machines on the road, all going as fast as the motors would permit, and good accommodations everywhere for men and machines."

By this time Mr. Tracy showed signs of fatigue, and it was suggested that perhaps American chicken tasted as good as the kind they raise at Laqueuille, even if the fizz water was three thousand miles away from the place of its origin. He agreed.

James Bjorkman has his automobile so well trained that he comes down town these days. Many people saw it for the first time to-day.—*DeKalb (Ill.) Review*.

## France and the Vanderbilt Cup Race.

### *Special Correspondence.*

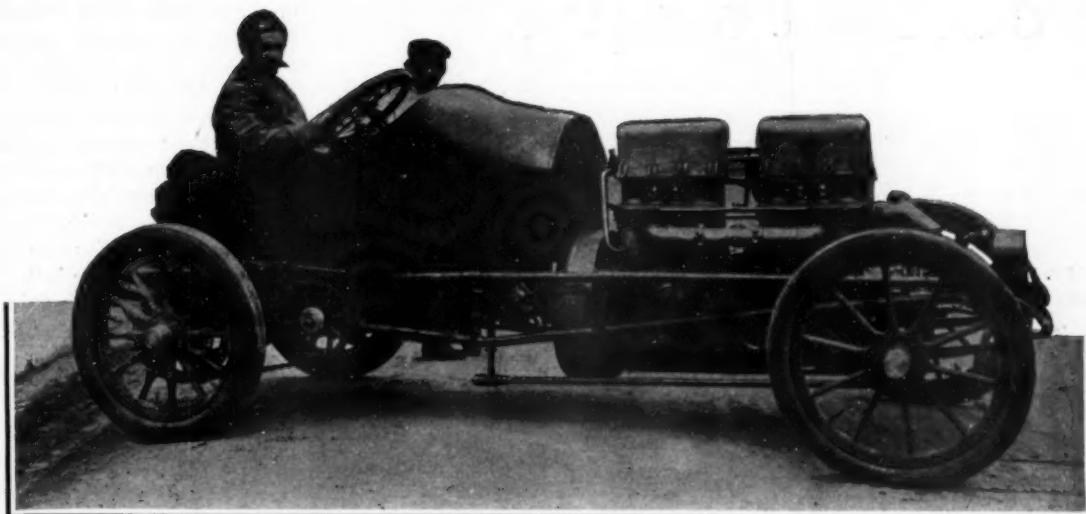
PARIS, July 21.—Although France has announced her intention of not taking part in the Gordon Bennett race of 1906, it is not yet known whether or not a race will be held, as no meeting of the parties interested has yet been called. Since the winning club refuses to organize next year's contest, the future of the cup will have to be settled by an international meeting in conjunction with the donor of the trophy. The object of France is, avowedly, to kill the Gordon Bennett trophy, the conditions under which it is run being considered too prejudicial to the French industry.

The question now being discussed is: Should not the same line of action be adopted toward the Vanderbilt cup as has been followed in the case of the Gordon Bennett trophy? France is bound to take part in the 1905 Vanderbilt race, the five cars having been chosen at the eliminating trials last month and the engagements officially made. It is urged that the Automobile Club of France pass a resolution similar to the one adopted in connection with the Gordon Bennett race, namely, whether France wins or loses the Vanderbilt cup in 1905, she will not take part in this event in 1906.

Excepting that the number of cars allowed each nation is increased from three to five, the conditions for the Vanderbilt cup are in every respect similar to those of the Gordon Bennett trophy, against which so much French opposition has been raised. One great annual international automobile race is certainly preferable to a number of international events. France, however, desires that this crowning trophy—whether it be the Gordon Bennett, the Vanderbilt cup or her own Grand Prix—should be run on the lines of proportionate representation, in which she would obtain a larger numerical standing than other nations on account of the greater importance of her industry.

Next year the Vanderbilt cup race will be run in the country to which the 1905 victor belongs. Should France be successful this year, she would be bound by the regulations to organize the 1906 contest in this country. This, it is pointed out by the advocates of proportionate representation, would re-create a state of affairs against which France has long been protesting. To avoid this, the only course open is to declare before the race is run that, whatever may be the result, France will not compete in the 1906 Vanderbilt race under its present conditions.

With the rising importance of America, Germany, England and Italy, all of which countries are willing and eager to run in the Gordon Bennett or Vanderbilt races, it will probably be difficult for France to stick to her present line of action. The coming battle of the cups is certain to be keenly fought and watched with interest by the whole automobile world.



RIGOLLY IN THE GOBRON-BRILLIE RACER WHICH COVERED THE KILOMETER IN 23 1-5 SECONDS AT OSTEND.

## Fast Straightaway Flights at the Ostend Meeting.

### *Special Correspondence.*

OSTEND, July 14.—This year's meeting at Ostend opened on July 9 with speed tests. The most interesting of these was naturally the heavy racing class, in which Rigolly, with a Gobron-Brillie car, covered the kilometer with flying start in 23 1-5 seconds, an average speed of 103.5 miles an hour. The course was laid out on a stretch of fine road. The time given for the kilometer is the average time made over the mile and kilometer course. Wagner, with the Darracq that ran in the Gordon Bennett eliminations, covered the kilometer in 23 1-5 seconds, an average speed of 96.4 miles an hour, which is considered a very fine performance for a machine built for the terrible Auvergne course. Rigolly's time was one-fifth of a second over the record established last year at Ostend by Baras with a Darracq.

In the light racing class De La Touloubre drove a Darracq over the kilometer in 29 2-5 seconds, or at the rate of 75.9 miles an hour. The record for this class is 26 seconds, made by Hemery with a Darracq.

The world's kilometer record for motorcycles weighing less than 110 pounds was broken by Cissac on a Peugeot, the distance being covered in 28 1-5 seconds, which corresponds to a speed of 79.3 miles an hour. The best previous record was 29 1-5 seconds. Giuppone, also on a Peugeot motorcycle, covered the distance in :28 3-5.

In the tourist classes the fastest time was made by a 60-horsepower Mercedes, which was the most powerful car entered, and which ran the kilometer in :37. A 7-horsepower Oldsmobile entered in the class for chassis costing not more than \$1,000 defeated all its competitors by doing the kilometer in 1:32 2-5.

The second day's events consisted of speed tests over five and ten kilometer courses for the same classes. Wagner, with a Darracq, covered ten kilometers from a standing start in 4:08, his average speed being 90.3

miles an hour. His time makes a new record for this event. Rigolly's time for this event was disappointingly slow, being 6:32. Giuppone, with his Peugeot motorcycle, made the best time in his class, covering the ten kilometers in 5:09 3-5.

In the class for touring-car chassis costing more than \$2,000 the fastest time for five kilometers was made by the 60-horsepower Mercedes driven by M. Jochem, the distance being covered in 2:52 1-5. The best previous record was 2:52 3-5, made by Baron de Caters, also in a Mercedes. The 7-horsepower Oldsmobile again won in its class, covering the five kilometers from a standing start in 6:34.

Touring events occupied the third day, a distance of 150 miles having to be covered by vehicles divided into three classes according to their prices and weights.

Speed tests were again held on the fourth day. The only sensational performance was that of Giuppone, who, with his 110-pound Peugeot motorcycle, covered a mile with standing start in 55 3-5 seconds, and a kilometer, with flying start, in 27 1-5 seconds, giving a speed of more than 82 miles an hour and breaking the best previous record by one second. No records were broken in the other classes. De La Touloubre's Darracq made the best mile from standing start in the light racing class, his time being :54 3-5. He made the flying-start kilometer in :26 2-5. Among the heavy racers the Gordon Bennett Darracq driven by Wagner was the fastest, covering the mile in :54 3-5 and the kilometer in :26 2-5. Among the touring cars the 7-horsepower Oldsmobile covered the mile in 2:38 3-5.

Throughout the meeting the best of weather prevailed. The two closing days were devoted to receptions for club members, driving competitions, parades and an excursion from Ostend to Antwerp.

**That new automobile** of W. L. Ellwood has arrived. It is a high stepper and has superb knee action, as certainly it would have to have if Will Ellwood had anything to do with it.—*DeKalb (Ill.) Review.*

## Mount Cenis and Doullem Hill Climbing Tests.

### *Special Correspondence.*

PARIS, July 17.—The classical Mount Cenis hill-climbing test run over a twenty-two-kilometer course with an average ascent of 8 per cent. was this year a contest between France and Italy. The champions entered by the former country were the two De Dietrich cars piloted by Gabriel and Duray, a Darracq steered by Hemery and a Rochet-Schneider by Juvanon. Italy had entered its Gordon Bennett cars driven by the same team—Cagno, Nazzari and Lancia—and had in addition the new 100-horsepower Italia driven by Fabry. The two De Dietrich cars, however, did not start, the Italia had an accident the day before the contest, which put it *hors du combat*, and the event was thus narrowed down to a struggle between the two French and the three Italian cars.

At the start Lancia, of the Fiat team, lost sixteen minutes and abandoned the climb at the seventh mile. The result of the race, nevertheless, was a victory for the Fiat firm, Nazzari coming in first in 19:18 5-10, an average speed of 42.4 miles an hour, and his companion, Cagno, second, in 19:26 3-10. Hemery's 80-horsepower Darracq was third, in 20:26 3-10, and fourth position was taken by the Rochet-Schneider, driven by Vitalis, in 23:51 4-5. Lancia's last year's record of 22:24 2-5 was thus beaten by a wide margin.

The hill was also tackled by light racers, motorcycles and touring cars, and in every class the previous record was beaten.

As a sporting and society event the Mount Cenis hill-climb occupies a high position in Italy, and this year's race was attended by the Queen-Mother, the Duke of Genes, representatives of the Italian government and numerous well-known French and Italian sportsmen.

At the same time that the Mount Cenis hill-climb was in progress in the north of

(Continued on Page 143.)

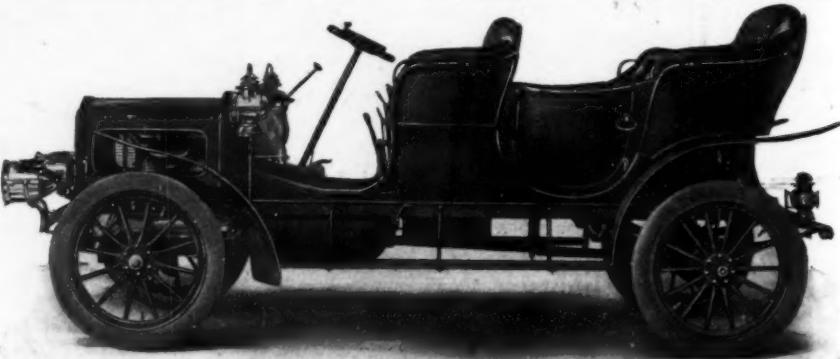
## Grout Gasoline Touring Car.

After a series of experiments said to have extended over a period of three years the Grout Brothers Automobile Company, of Orange, Mass., well known as a manufacturer of steam cars, has brought out a gasoline car of the accepted touring type, having a four-cylinder vertical motor rated at 28-30 horsepower. Those who are familiar with the Grout steam car of the larger type will at once notice the resemblance between it and the new gasoline car; this is due to the fact that the side entrance body is of the same form as that used on the large steam machine. A series of gasoline cars will be placed on the market in a short time, consisting of the 28-30-horsepower car referred to, a 40-horsepower car with a six-cylinder motor and a 60-horsepower car, also with six cylinders. The latter will be a big, roomy vehicle with limousine body. Only the 28-30-horsepower machine is ready for delivery at present; the car is illustrated by the accompanying engraving.

The frame of the 28-30-horsepower gasoline car, like that of the steam touring car, is of steel-flitched oak. Both front and rear axles are of solid, square nickel steel, the front axle being 1 3-8 inches square and the rear axle 1 1-2 inches. The rear axle being solid, the rear wheels are of course driven by double chains. All the road wheels run on ball bearings of large size. The wheels, of the artillery type, are 30 inches in diameter, and are fitted with 4-inch tires. LeMoine steering pivots are used.

A steel sub-frame supports the four-cylinder engine and the transmission gear case on three points. The cylinders are cast individually, and have valve chambers, water jackets and heads cast integral; the cylin-

ders are secured to the aluminum crank case in the usual way, by means of studs. A removable panel in the side of the crank case gives access to the cranks and connecting rods. The bore of the cylinders is 4 1-2 inches and the stroke of the pistons 5 inches. All valves are located on the left-hand side of the motor, and all are mechanically operated by cams on a single camshaft, the



WHITE CAR FOR 1906 MODEL F WITH LONG WHEELBASE AND SIDE ENTRANCE.

gearing for which is enclosed. All the valves are exactly alike, and all are placed in separately removable cages. Crankshaft and connecting rods are made from steel forgings, the latter being of I-section, with bronze bushings in each end; the main bearings of the crankshaft are also of bronze, four in number.

Lubrication of the motor is effected by means of a force feed oiler belt driven from the crankshaft. Of the six feeds, four supply the cylinders and the remaining two the end bearings of the crankshaft. Crankpins, camshaft bearings and the interior bearings

of the crankshaft are lubricated by splash.

Cooling is effected by the customary pump forcing water through a honeycomb radiator, the latter being rendered more effective by a belt-driven fan, which draws a current of air through the radiator.

One vibrator coil, carried on the dashboard, is used in connection with a distributor mounted on the top of a vertical spindle. Current for the jump spark is furnished by a storage battery and a set of dry batteries, a switch being provided so

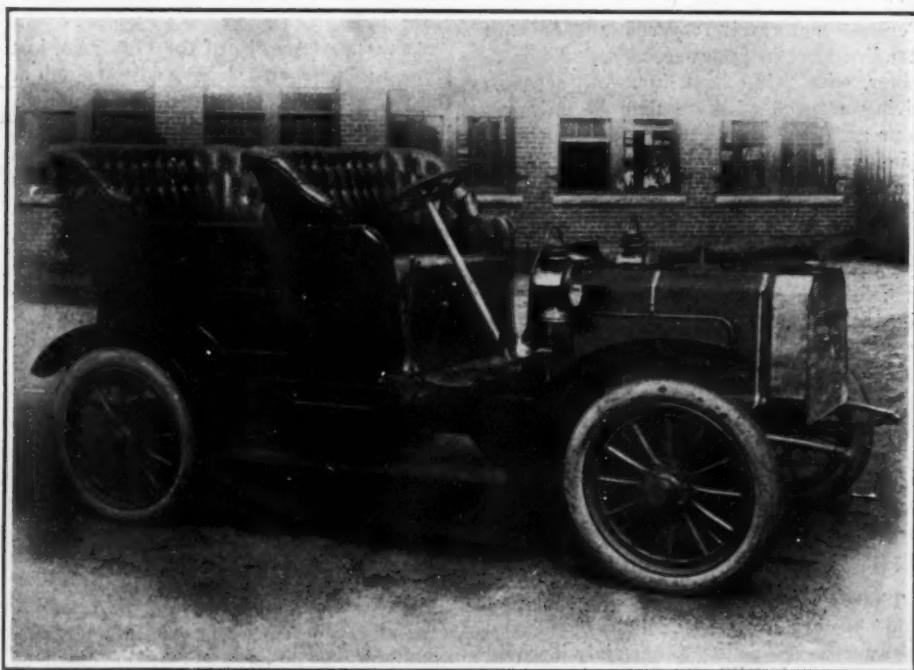
that either may be used at will. The spark plugs are inserted over the inlet valves. The carburetor is automatic in its functions, and the throttle is incorporated in it. Engine speed is regulated by the throttle and ignition levers placed in the usual position on the steering wheel.

Power is transmitted from the motor through a leather-faced cone clutch and a universal joint to a three-speed sliding gear. The differential and the bevel driving gears are contained in the rear end of the transmission gear case; the countershaft runs in long, plain bronze bearings, and carries on its extremities the sprockets for the side driving chains. A pedal is provided for releasing the clutch, and ball bearings take the thrust. A single lever operates the three forward speeds and reverse, working over a notched quadrant.

Steering is by a worm and segment gear, the thrust being taken by ball bearings. Brake bands act on drums on the rear hubs, forming the emergency brakes operated by a hand lever; the service brake is a drum and band on the differential, and is operated by a pedal. Wheelbase is 96 inches and tread 56 inches.

### New White Car for 1906.

Several changes have been made in the White steam car in designing the 1906 model, and though it is yet early, the White Sewing Machine Company has made public the principal differences that exist between the 1905 car and the 1906 machine, which will be known as Model F. It is announced that the entire output of the 1905 White cars has been disposed of, leaving the shops clear for work on the new model, which has already been subjected to tests with results which,



NEW GROUT 28-30 H.P. GASOLINE TOURING CAR.

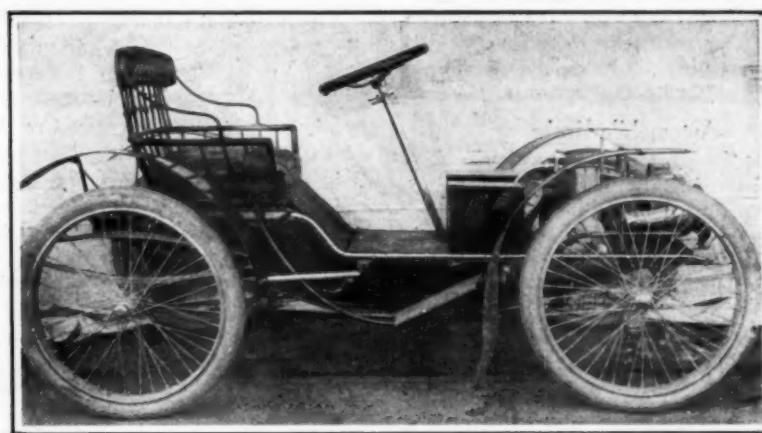
the manufacturers state, were highly satisfactory.

Most noticeable among the changes are the side-door entrances to the tonneau and the lengthened wheelbase. The former wheelbase of 93 inches has been increased to 114 inches, the additional twenty-one inches being utilized in making room for the side doors and producing a more roomy and comfortable body. With a view to reducing the dust nuisance to the minimum, the curves of the rear of the body have been so designed as to deflect the air-currents downward and backward. Under the rear seat is a large storage compartment with a door opening from the rear of the body.

Practically the only change made in the power plant is in the burner. This has been entirely enclosed, the openings for the admission of air having been eliminated. All the air used by the fire is now taken in with the vapor through the induction tube, and thus the burner is made practically "wind-proof." As the side flues used in former models to carry off the products of combustion are rendered undesirable by the new style of body, the gases after passing upward through the steam generator are deflected and carried downward through an annular flue surrounding the generator. Owing to the large area of the discharge flue, the gases reach the atmosphere in a comparatively cool state, and are dissipated in the air without being in any way objectionable.

Among the detail changes that have been made in the Model F car are the compensating brakes and an inside overflow for the water tank. A continuous steel wire cable is substituted for the usual steel rods in connecting up the brakes, the arrangement being such as to ensure an equal distribution of braking effort on the wheels. The inside overflow permits of ready flushing and prevents the water from running over.

**Motor boats** are very popular on Lake Lucerne, in Switzerland, and their use is becoming more general every season.



RANDALL "MIDGET," BUILT BY CHARLES V. RANDALL, OF SAN JOSE, CALIF.

### Speedy Little Car.

The little machine herewith illustrated is believed by its owner and builder, Charles V. Randall, of San Jose, Cal., to be the smallest real "car" in the country. Its weight, ready for the road, including three and a half gallons of gasoline, is but 365 pounds. The motor, a 2 1-4-horsepower De Dion, propels the little vehicle at a normal speed of eighteen miles an hour, while a maximum speed of twenty-seven miles has been attained under favorable conditions. The frame is of one-inch angle steel trussed with quarter-inch rods, and is suspended on full elliptic springs. The distance from the top of the seat cushion to the ground is but twenty-six inches. Mr. Randall is a firm believer in light vehicles, and has built this little car for his personal use, and not for sale.

### New Use for Old Car.

An enterprising theater manager in Milan, Italy, has discovered a novel use for the automobile which has resulted very profitably for him. He made the rather inexpensive purchase of an old Benz car—one of those antiquated machines that seem to

be pushed along more by the thumping of the engine than by the rotation of the wheels, but which, nevertheless, keep on doing their work, year after year, without failure. A light wooden framework was built, extending over the entire car and reaching nearly to the ground, the extreme height being nearly nine feet. Panels were fitted to the framework, and on the panels are pasted theater bills and posters, while three large plates of ground glass, one on each side and one in the rear, are used as screens on which cinematograph pictures or illuminated advertisements are projected. Though this outfit has been in use only a short time, it has attracted much attention and is said to have considerably increased the business of the enterprising theater proprietor.

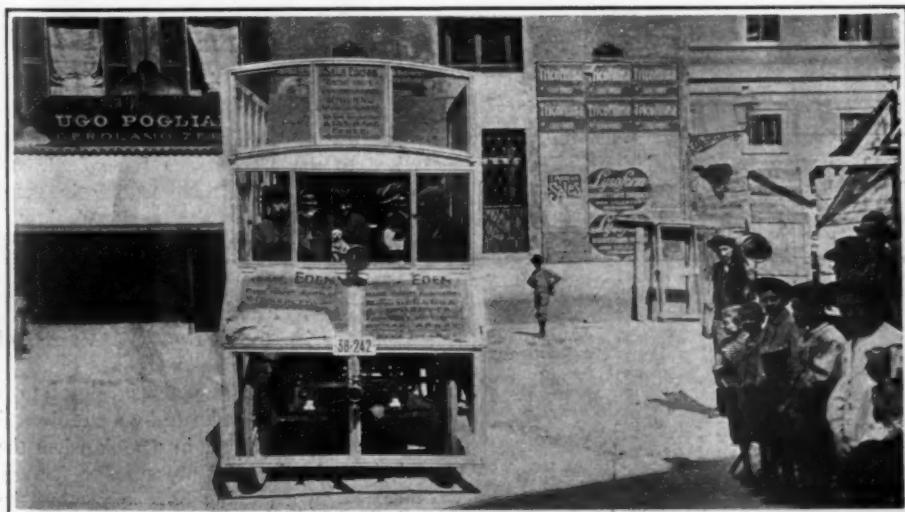
### Mt. Cenis and Douleme Hill Climbing Tests.

(Continued from page 141.)

Italy, the Douleme hill contest was being carried out in the north of France. The meeting had extended over three days and included a variety of contests, though the one looked upon with most interest was the hill climb of 500 meters on an 8 per cent. grade for the De Caters challenge cup. The cup was gained last year by Hanriot, with a Bayard-Clement, in 19 seconds, and this year's match lay exclusively between the holder of the cup and Wagner, with the 80-horsepower Darracq, which took part in the eliminatory races for the Gordon Bennett cup.

A flying start was given, and the Darracq went up the hill in 15 1-5 seconds, or at an average speed of 73 1-2 miles an hour. Although there were only two competitors, the racing was exceedingly interesting. Hanriot's Bayard-Clement, being only three-fifths second behind the winner. Thus, although he has lost the cup, he has the satisfaction of having exceeded his last year's performance by a wide margin.

One of the evil effects of using too much lubricating oil in the cylinder is the clogging up of the muffler. This, if carried far enough, results in excessive back pressure and consequent loss of power.



OLD BENZ CAR TRANSFORMED INTO THEATRICAL ADVERTISING WAGON.

# Patents

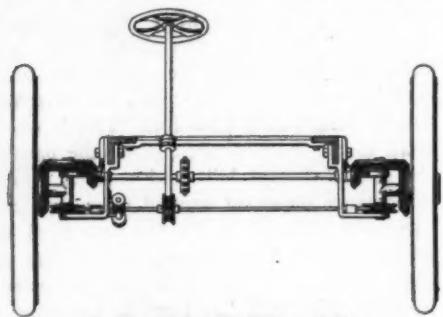
## Automobile Brake.

No. 794,382.—J. Unser, of Carthage, N. Y.  
A variety of air brake, adapted to be applied either to automobiles or to trailers behind a traction engine, and worked by the driver of the latter.

## Four-Wheel Drive.

No. 794,666.—Mr. J. Davin, of St. Louis, Mo.

A four wheel drive with all wheels steers. The general character of it is clear from the drawing. It is proposed to steer by a double worm reduction as shown, and to connect the two crossworm shafts by a fore and aft shaft with spiral gears at each

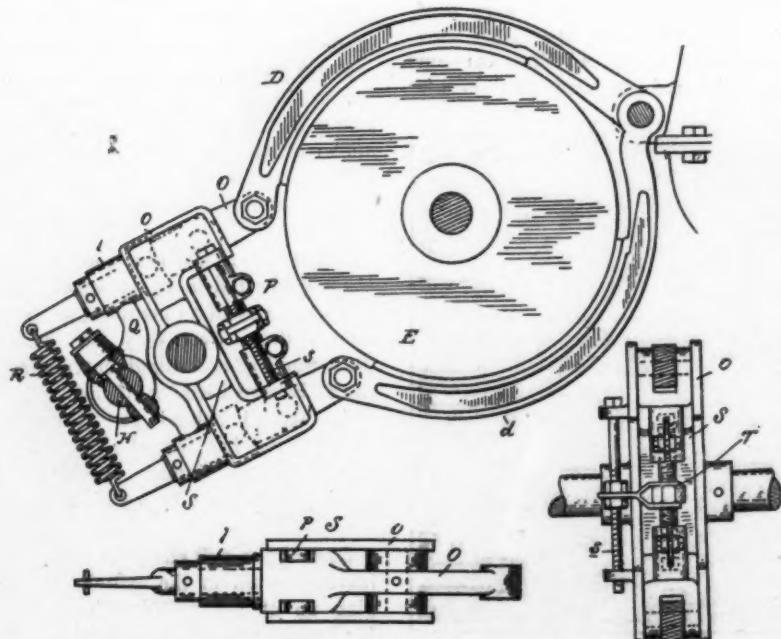


DAVIN FOUR-WHEEL DRIVE.

end. The efficiency of this equipment does not seem to have been considered, and it fails to afford a greater angle of deflection for the inner wheels on a curve, as is required to avoid side slip.

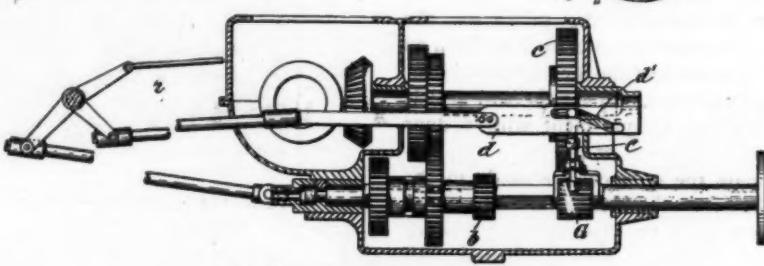
## Planetary Gear Mechanism.

No. 793,929.—N. T. Harrington, of Detroit, Mich.



HARRINGTON PLANETARY GEAR TRANSMISSION.

A pair of brake shoes *D d*, tightened on the slow-speed or reverse drum *E* by the mechanism shown, which is operated by endwise movement of the shaft *H*. The two levers *O O* are fulcrumed at the ends of the link *P*, which is adjustable by a right and left hand screw, and their outer ends are nominally drawn together by the spring *R*. They are spread by the cam



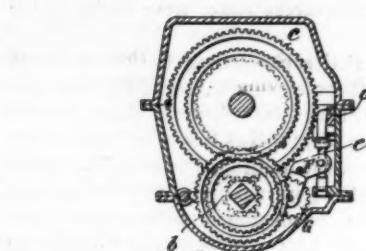
STINZING REVERSING MECHANISM.

pieces *Q*, which are attached to *H* and act against rollers *I*. Thus one position of *H* tightens the brake shoes, and another releases them and may be made, by connections not shown, to engage the high-speed clutch. To prevent *D* from rubbing on *E* when released, the floating support *s* is provided, which itself is carried by an elastic piece *T* attached to the right and left hand screw. The guides *S* prevent lateral movement of *O O* with *H*. They have checks *o*, with guide blocks *p* working in slots in the levers.

## Reversing Mechanism.

No. 793,855.—F. C. Stinzing, of Union, N. J.

The intermediate pinion *G* is carried on a forked lever *F*, fulcrumed near its centre and actuated by a plunger *e*, which near its head has a pin working in a cam slot *d'* in a slide *d*. This slide is worked by a bell

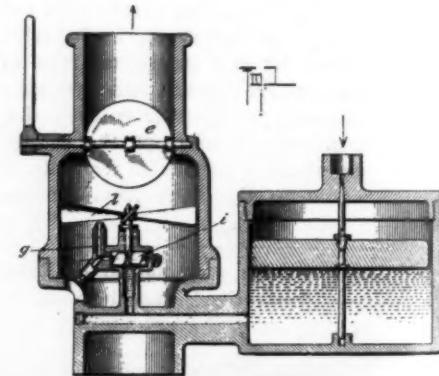


crank connected to the gear shift, in such a manner as to bring *G* into working position when the sliding pinion *b* has got past the low-speed gear *c*. It therefore meshes with *b* and *c* at the tips instead of the ends of the teeth, as is usual.

## Carbureter.

No. 791,801.—N. Leinau, of Ashbourne, Pa.

In this carbureter the spray nozzle *g* is located, as shown, where the gasoline jet, or part of it, will impinge on the blades of a fan *f*, which is rotated by the upward air



LEINAU CARBURETER.

current. This is supposed to assist in mixing the gasoline and air. Another feature is the use of a sort of rotary pump *i*, attached to the base of the fan spindle and employed to assist the gasoline in going through the mouth of the nozzle. A throttle valve is indicated by *e*.

## Fluid Gauge.

Nos. 794,675 to 794,679.—M. Martin, of Malden, Mass.

This group of five patents relates to a gauge designed to indicate by a needle and dial the level of liquid in a tank when the tank is under internal pressure or for any other reason a stuffing box connecting the needle to the interior float is not desired. The general character of the device covers

a vertical, spirally grooved shaft, a float running on the grooves of the shaft and guided by vertical rods so that it rotates the shaft by moving up or down, a magnet attached to the top of the shaft, a dial over the magnet, and a magnetic needle pivoted over the dial so as to move with the magnet on the shaft. The shaft, etc., may be carried in a housing screwed into the filling hole of the tank in place of the usual plug. Modifications provide for a filling plug at one side of the housing, so that the latter does not need to be taken out to refill the tank, and a simplified construction for use where the tank is not to be under internal pressure.

#### Storage Battery.

No. 793,117.—F. S. Witherbee of Jersey City, New Jersey.

A storage battery, one feature of which is the form of the yokes connecting the lugs of the positive and negative plates respectively to the terminals in the cover of the cell. These yokes, instead of being as short and direct as possible, have bent arms, which serve partly to facilitate alignment of the plates and partly to steady them. Another feature is a gas vent in the form of an inverted T-shaped slot in a plug in the cover. The plug is surrounded with an air space between, by a threaded bushing, to prevent slopping of the acid.

#### Gear and Crank Case Design.

No. 793,409.—H. Austin of Birmingham, England.

A construction whereby the crankcase and gearcase are rigidly connected to insure perfect alignment of the shafts. The front end of the gearcase connects to a housing which extends around the flywheel and is cast integrally with the crankcase. A partition, of course, separates the interior of the crankcase proper from the spaces occupied by the flywheel. The structure thus formed is supported at three points, one on each side of the flywheel, and the other at the front end.

#### Vaporizer.

No. 794,192.—J. W. Seal, of Hammersmith, Eng.

A vaporizer designed more particularly for oil engines. The air is drawn upward and past a spray nozzle partly closed by a needle valve, whose lift is controlled by a centrifugal governor, to vary the amount of oil fed according to the power required. Attached to the valve stem is a flat helix of wire instead of the usual mushroom, on which the oil spray impinges. The air drawing through and past this coil springs it up at the edges, so that substantially the same amount of air gets by at any position of the valve.

**Undertaker Ephriam Culp has bought a new automobile and had his first experience at the ball game yesterday. His gasoline gave out.—Goshen (Ind.) Times.**

## Letter Box

#### Motor Passenger Coaches.

*Editor THE AUTOMOBILE:*

[242.]—An interurban railroad is likely to be constructed on a stretch of 58 miles of road in this locality, and the question of motive power has been raised, gasoline and electricity both having been mentioned. Will you kindly advise concerning the following questions:

First.—Do you know of any concern engaged in the building of motor cars for such service?

Second.—Have any experiments been made along these lines, and if so, by whom?

Third.—Please give your opinion as to the practicability of the gasoline motor for cars in interurban service.

P. H. W.

#### Texas.

We take pleasure in replying to your queries, but before doing so would call attention to the distinction between the two types of cars that have been used for this purpose.

In one type (the simpler) the gasoline motor is used to drive the car direct by means of suitable gearing. In the other type, the gasoline motor is used as a prime mover to drive a dynamo which furnishes current to motors connected with axles in very much the same way as they are on the ordinary trolley car. It would, of course, be entirely without the compass of this reply to enter into a discussion of the relative merits of the two types. With the facts in mind, we reply to your queries as follows:

(1) We know of two coaches of the type you mention in successful operation, both propelled direct by internal combustion motors. One of these is in operation on the Union Pacific Railroad; just where at the present time we do not know, but it was originally designed to be operated in the vicinity of Portland, Oregon. The other vehicle was built for the Great Northern Railway, of England, and is in use on some one of its minor branches. We believe that enquiries addressed to the official authorities of those roads, stating your anxiety to learn something about the practicability of the system, would undoubtedly bring you some desired information.

(2) Part of your second question is answered in the foregoing. We believe that two cars of the type in which a combined system of gasoline and electric drive is employed are now under construction by the General Electric Company of Schenectady, N. Y., and we suggest that you write to this company for information on the subject.

Now, as to our opinion on the practicability of these cars. We know of no good engineering reason why such cars should not furnish the most satisfactory service,

especially where the traffic is comparatively light. No doubt you have been over the question of initial expenditure, and have realized that by the use of such cars the necessity for a large investment in a central power plant, in copper contact wires, in feeder wires and rail bonds is obviated. The whole question, of course, turns on the reliability of such cars, as a road, to make money, must keep its cars running.

The gasoline engine is long past the experimental stage, as witness the recent thousand miles endurance runs in New York, and the questions to be solved relate more particularly to the proper application of the power to the driving of the car. This is undoubtedly in a somewhat experimental stage as yet, there being no means of knowing just what the right construction is without experience in the operation of such cars, which is limited.

We are firm believers in the possibilities of such service, but would not undertake to express an opinion on the economic value of such an equipment in the light of the very limited amount of data available on the subject.

It will give us much pleasure to forward to our correspondent any information on the subject sent to us by manufacturers for this purpose.

#### Electric Ignition Wiring.

*Editor THE AUTOMOBILE:*

[243.]—Can you give a diagram showing the correct method of electric ignition wiring for a gasoline automobile of any kind?

S. M. C.

*Marietta, O.*

While we would be glad to answer your question if we could, it would be like an electrician attempting to answer the question, "How should a house be wired?" If you will give the type of motor, the system of ignition—jump spark or make and break—the source of current, the kind of coils and so on, a wiring diagram to suit the conditions will be given. There are so many variations of each of the ignition systems used that any attempt to cover the whole ground in this department is out of the question.

If you ride in an automobile and think you are going too fast, you had best watch out for the cop on a bicycle, who has a pedometer attached to his wheel. Yesterday afternoon Chief Jennings placed two pedometers on the wheels of the two bicycle officers on Peachtree street. The pedometers will register exactly how fast a bicycle is moving, and the scheme is to have a bicycle officer on whose wheel there is a pedometer to follow an automobile which is supposed to be running at a rate of speed faster than is allowed by law. If an automobile is running too fast and a policeman on a wheel with a pedometer runs after the auto he can tell exactly how fast the auto is moving.—*Atlanta (Ga.) Constitution*.

# THE AUTOMOBILE

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**The 1905 Vanderbilt Race Course.** With the Gordon Bennett race for 1905 disposed of, the International Vanderbilt cup race, to be held on Long Island in October, now focuses attention. The course which has been selected by the race committee is described in detail in this issue, after a careful inspection of the roads. In its remoteness from towns, or even villages of any considerable size, it has an advantage over the course of last year, and it is certainly more picturesque, though this is a feature that will not be appreciated by contestants going at the rate of a mile a minute or better. The road surface is good, and the turns, with slight improvements, will be quite easy to skilled drivers. Nevertheless, considering the number of cars which will start, the course is open to the serious objection of being too short, and for much of its length it is quite too narrow for safe passing at high speed. This view is not merely local, but is held abroad, especially in France, where the impression seems to prevail that "the course is too small and the race too large." In fact, some of the most famous French drivers have declared that they would not care to risk it.

It seems probable that four nations will compete, viz.: America, France, Germany and Italy. Should each nation enter its full complement of five cars, there would be twenty starters over a course less than thirty miles in circuit. Allowing a three-minute interval between cars, which is none

too much, the cars first started would have completed the circuit long before the last cars were sent away. There can be no question that a serious congestion of the course would result from a full entry list, and this would be aggravated by the narrowness of much of the roads, which would make passing impossible. Even if no accident should occur, the result would be to put many of the drivers out of temper and tend toward unpleasantness. Again, on the Lakeville road, the course is so winding and narrow that in many places a driver can see but a very short distance ahead, and should a car break down it would be practically impossible to get it clear of the road before a following car would reach it.

No doubt the committee has given serious attention to these difficulties. It would be well to apply a remedy in season so that those who should compete may not be deterred by anticipated dangers. Two solutions immediately present themselves: either to establish timing controls, as in the Gordon Bennett, a suggestion made by Mr. CLARENCE GRAY DINSMORE in an interview recently published in these pages, or by adding to the new course the old one in its entirety, making an "8" shaped circuit, such as was adopted in the Gordon Bennett race run in Ireland. Permission to use this additional stretch of road could doubtless be easily obtained from the authorities.

Anything that makes for the safety of the race is certainly worth time and attention, and an early official announcement of the committee on this subject would be beneficial.



**Mr. Edison Again Breaks Out.**

The world in general, and automobilists in particular, received with interest THOMAS A. EDISON's announcement that he has at last "perfected" the storage battery, and the seemingly necessary comment that "the automobile industry will be revolutionized." While Mr. EDISON's recognized prominence as a developer of inventions makes any statement proceeding from or attributed to him of much weight, it must be borne in mind that a single test, or even a single series of tests, is insufficient to adequately determine the value of a storage battery. It will doubtless be remembered that tests of the most exhaustive character were said to have been made with the Edison storage battery that appeared some years ago and filled the daily papers with stories of the surprising revolutions the new battery was about to inaugurate in the building of automobiles. Yet the manufacturers of lead-plate batteries are still making a living, and the automobile for \$100 is not yet in the salesroom.

Even if the statements with which Mr. EDISON is credited are correct, the new battery is not entirely "perfect," for it is slightly larger, for a given output, than a lead-plate battery, though weighing but half as much. If the weight is as low as it is

stated to be, and if the cost of making it is as low as Mr. EDISON is said to expect, a great advance will have been made in this branch of the industry, even if the battery proves no more durable than the ordinary type. The new battery is said to be very inexpensive, the principal materials being iron and nickel oxides and potash; and the same claim is made for it that was made for the first "perfected" Edison battery—a very high discharge and charge rate without damage.

A fact that strengthens the hope that the great things claimed for the latest battery are not visions of reporters who are ready to believe Mr. EDISON to be infallible is that the "Wizard of Menlo Park" possesses an extraordinary tenacity of purpose and has for a long time been searching nature for a material more suitable for use in storage battery construction than lead. He has followed this course of indefatigable research and experiment in the development of other appliances, notably in the case of the filaments used for the incandescent electric lamp; but it should not be forgotten that the incandescent lamp is amongst the most inefficient power-using devices in daily use. Even if Mr. EDISON is successful, however, and produces a storage battery that is as nearly perfect as a storage battery can be, it does not by any means follow that the automobile industry, or any other industry, will be "revolutionized," for the storage battery has too many inherent peculiarities to ever become a serious competitor of other sources of energy in the fields they now occupy for the propulsion of automobiles.



**Cars New and Second-hand.**

When the automobile reached that stage in its development where its popularity was assured and its utility a demonstrated fact, there immediately sprang up a demand for a cheap car—a car for the "poor" man. The demand increased as the popularity and practicability of the automobile increased, and there are to-day thousands who are waiting until someone produces a serviceable automobile that can be sold at a price approximating that of a good horse and buggy, or even of a one-horse family rig. Notwithstanding the demand and the ready market, no car has yet been brought out that can compete with the horse-drawn outfit in point of prime cost; it is useless to say that the price even of a little runabout is a great deal of money to the average wage-earner. The necessity for using high-grade material, the expensive labor employed, the costly plant that must be installed, and, last but not least, the fact that it is still an easy matter to sell a good car at a good price, have stood in the way of the production of the car "for the masses," as the term is commonly used.

There is, however, a solution of the problem that is in many cases very satisfactory; namely, the second-hand car. It has frequently been proved that a well-built

machine, given good care and the occasional renewal of worn parts, will run and give satisfaction for a long time—long enough to become very much out of fashion, so far as appearance is concerned. Following the rapid increase in the total number of cars in use, there is a proportionate increase in the number of second-hand cars on the market, and it is now a comparatively easy matter to find a second-hand car of almost any type at a price very much below its original cost, and in many cases at figures that are really absurdly low.

A machine that has seen a good deal of service, and especially one that is a little out of date with regard to appearance, will rarely bring more than half its original cost, and not infrequently a deal can be made at one-third of the new value. If the engine, transmission and other main parts have been properly cared for there is no reason why such a car, after being overhauled and put in good order, and perhaps fitted with a new bearing here, a pinion there or a bolt or two somewhere else, should not continue to give satisfactory service for a long time. Where the owner is of a mechanical turn of mind he can keep a small car on the road with a surprisingly small repair bill for keeping a car in good order is a comparatively simple matter if the operator has a thorough knowledge of every detail of the machine—that is, barring serious accidental damage, which can almost always be avoided by careful and considerate driving.

In purchasing a second-hand car it is, of course, essential that the purchaser should obtain an accurate knowledge of the real condition of the vital parts of the machine, and this can only be done with the assistance of someone possessing the requisite knowledge and experience. There are many second-hand cars that, though capable of running, have been so abused and neglected that their machinery is practically destroyed; these would naturally be expensive at any price. But with the price of a good horse and buggy in his pocket and the advice of an experienced automobilist available, the man with a shallow purse can secure a good, serviceable, small car at almost any time, and with careful driving and a reasonable amount of attention to the condition of the machine, can keep it running without undue expense.

If he can afford it he will be much wiser to buy a new car with up-to-date improvements and with the manufacturer's guarantee back of it; but if it is a case of a second-hand car or no car at all, his money will be well invested in the return he will get in health and happiness in the rational use of an automobile.

But that automobile feat in going up and down the court house steps does not break the record. Fairly good success has been made by the auto in climbing trees and telegraph poles.—*Los Angeles (Cal.) Herald.*

## THE AUTOMOBILE.

### MISSOURI'S LICENSE LAW HELD VALID.

**Court of Appeals Holds that Act Requires License in Every County Where Car Is Used and Affirms \$100 Fine of Lower Court Against R. W. Cobb, of Hannibal.**

Missouri's notorious automobile law, which requires an automobilist to take out a license in each county in which he operates his car, was declared valid some time ago by the Court of Appeals at St. Louis, and a fine of \$100 assessed against R. W. Cobb, of Hannibal, by a lower court affirmed.

Mr. Cobb was arrested in New London on April 3, charged with driving an automobile through the streets of that place without having secured a license to operate his car in Ralls county. The case was taken before the grand jury of Ralls county and an indictment returned. At the trial in the Circuit Court Cobb was found guilty and fined \$100 by Judge David H. Ely. His attorneys argued that the law requiring a license from each county through which an automobilist traveled was unconstitutional and that Cobb had not violated the law.

After an unavailing motion for a new trial and arrest of judgment, the case was appealed, as a test case, to the St. Louis Court of Appeals. Judge Bland sustained the verdict, and his opinion was concurred in by Justices Goode and Norton.

In his decision Judge Bland dismisses the effort of defendant to raise the question of constitutionality by holding that "neither the article nor section of the constitution it is thought the act violates is anywhere pointed out or referred to in defendant's motions or brief." He then quotes in full the section of the law requiring licenses, and sustains the lower court in overruling a motion to quash the proceedings because of a defective indictment. Proceeding, he says in conclusion:

"The main contention of defendant is that the trial court misconstrued Section 4, by refusing to hold (if we correctly understand the briefs of counsel) that the license granted defendant by the Clerk of the Marion County Circuit Court authorized defendant to run his automobile over the public roads of any and all counties in the state. The section does not expressly provide that an owner of an automobile must take out a license in each and every county over whose roads he may desire to run his machine. If an owner desires to run his automobile over the streets of a city, he must procure a license from the license commissioner of such city; and the section further provides, in effect, that, if he would extend his excursion beyond the limits of the city, and run over public county roads, he must procure a license from the clerk of the county court before he may lawfully extend his tour into the county; and if he would make a long run across the country through several counties we think the section clearly contemplates that he must procure a license from the county clerk of each and every county over whose public roads he may desire to run before he can lawfully run his automobile on them."

"A license has only a local application. It affords no protection beyond the boundaries of the jurisdiction of the officer who issues it. The jurisdiction of the clerk of the Marion county court to issue licenses is confined by law to occupations, etc., carried on within the boundaries of Marion county, and can have no force or effect or afford any protection to one carrying on an occupation or running an automobile in Ralls

county. A license, to be effectual throughout the state, would be one issued by a state officer expressly authorized thereto by an act of the general assembly, or by a county officer under some broad act giving such license force and effect throughout the boundaries of the state. No such provision is found in the act in respect to automobiles, and we are of the opinion that an automobile owner is required to take out a license in each and every county over whose roads he desires to run his automobile, and that the learned trial judge correctly construed Section 4. The judgment is affirmed. All concur."

Writing under date of June 19 to THE AUTOMOBILE, Mr. Cobb says:

"I had a license for my home county and supposed it covered me touring in any part of the state. The circuit court fined me \$100, which is the lowest fine under the Mossback law, and which is entirely too much for such an offense.

"I fought the case without assistance from any of the automobile clubs, which seemed to take no interest whatever. It seems the automobile clubs of the state do not amount to much, or they would not allow such an objectionable statute to remain. Such a law is a menace to all tourists through and in the state, who can be jerked up and fined from \$100 to \$500 for an offense of which they are ignorant, as there is no way to tell when you pass from one county into another.

"Besides, there is the annoyance of having to have so many different numbers attached to your car. What would a car look like with 115 different numbers on it, that being the number of counties in the state? At \$2.50 for each license, they would amount to the neat sum of \$287.50, which the automobilist must pay if he wants to tour all through his own state.

"I, for one, find it much cheaper and pleasanter to tour the adjoining states, which are not so prejudiced and have no such prohibitory laws."

### PITTSBURG LICENSE LAW.

**Declared Valid by Quarter Sessions Court in Case of Club Member.**

#### Special Correspondence.

PITTSBURG, July 29.—An important automobile decision was announced July 26 by Judge Robert S. Frazer in Quarter Sessions Court, sustaining the city ordinance which places a license tax on automobiles.

The legality of the ordinance was disputed by the Automobile Club of Pittsburg through its attorney, James Francis Burke, who claimed that both a state and city license could not be assessed. The appeal was taken in the case of Dr. John A. Hawkins, who was fined by a police magistrate for not taking out a city license.

Judge Frazer in his decision discusses the matter thoroughly, and says that the Pennsylvania act of 1903, under which a license tax is assessed on automobiles, is one with which the city has nothing to do, and that the city has the right to assess its own license tax and to make the other restrictions as to speed and equipment which are embodied in it. The automobilists contended that as they were already assessed by the act of 1903 they could not be assessed under a city ordinance, but Judge Frazer holds they must pay both.

The city authorities anticipate no trouble in collecting the money. A few days' grace will be allowed, and then all will be arrested if they do not pay up. There are about 1,000 machines in the city. The tax to be paid on a single seated car is \$6, and on a double seated automobile, \$10 a year.

## THE AUTOMOBILE.

August 3, 1905.

### A. L. A. M. MEETING.

#### Members Discuss Relations with Agents and Organize Patent Branch.

##### *Special Correspondence.*

BUFFALO, July 31.—The regular monthly meeting of the Association of Licensed Automobile Manufacturers was held at Niagara Falls last Thursday and Friday, July 27 and 28. The next meeting of the association will be held in New York City on August 25.

George H. Day, of New York City, general manager of the association, presided at the Niagara Falls meeting, and others who served as officers were A. S. Marvin, traffic manager; H. F. Cuntz, patent attorney, and C. A. Wardle. Among the business transacted was an appropriation made to the mechanical department of the experimental branch to ascertain the general principles underlying automobile construction, and the appointment of a committee to make a study of the agency situation and to establish closer co-operation between the manufacturers and agents.

In an interview Mr. Day said: "It is not true, as has been rumored, that we met here to arrange for a fight against the dealers. We realize that the co-operation of the dealers is a very important element to our success, and we are here to see that we get along with them amicably in every respect. While in Niagara Falls we have organized a patent company, or branch of the association, with a substantial capital, to handle all questions of patents which may affect our trade. The company will see that our rights are not infringed upon and will defend us against charges of infringement."

"We have also arranged a thorough study of the agency situation, so as to establish the closest relations possible between the manufacturer and the agents. The business is now enjoying a steady, substantial growth, and it will continue to grow under our mutual co-operation."

Twenty-nine members of the association were present at last week's meeting.

### CO-OPERATIVE COMPANY.

#### Formed by Muskegon Club Members—Parts and Supplies at Fair Prices.

##### *Special Correspondence.*

MUSKEGON, Mich., July 29.—Local motorists and motorcyclists believe they have solved the problem of obtaining supplies and extra parts at reasonable prices by the organization of a co-operative company to deal in the various articles so often needed by the machine owners, and although the plan has been in operation but a short time, it has proved most successful.

The members of the Muskegon Automobile and Motorcycle Club have, as in the smaller cities of the country, had to pay exorbitant prices for everything, and conditions finally becoming unbearable, a meeting was held to discuss ways and means out of the difficulty. After thoroughly considering the matter, the Muskegon Supply Company was incorporated with a capital stock of \$5,000, divided into 1,000 shares of a par value of \$5.00 each. The company is entirely separate from and conducted independently of the club, but the stock is held by the club members. A store was rented, a stock purchased, and the business placed in charge of an expert repair man.

The company is run on business lines, a fair price being charged for repair work and supplies, and already a profit is being made, which means that the proposition will

actually pay dividends to the stockholders in addition to supplying them at less cost than the articles can be purchased from the independent dealer.

In selling no effort is made to discriminate between a member and a non-member of the club, and both enjoy like privileges.

### RACING AT BUFFALO.

#### List of Events for Two-Day Meeting August 18-19.

##### *Special Correspondence.*

BUFFALO, July 29.—An excellent program of events has been prepared by the Automobile Racing Association, under whose auspices the race meet will take place on the Kenilworth track Friday and Saturday, August 18 and 19 next. Following is the list of events:

##### FRIDAY, AUGUST 18.

Two-mile motorcycle race.  
Five-mile open, cars under 1,412 pounds.  
Five miles, free-for-all; first heat, \$500 trophy (cash or plate).

Five-mile open, stock touring cars.  
Second heat, \$500 trophy (cash or plate).  
Ten-mile open.

##### SATURDAY, AUGUST 19.

Five miles, Buffalo Owners' Handicap.  
Five-mile open, cars under 1,432 pounds.  
Three-mile novelty race.

Five-mile National Circuit Championship, free-for-all; first prize, \$150 (cash or plate).  
Five miles for stock touring cars with driver and three passengers.

Ten-mile final, \$500 trophy (cash or plate).  
Diamond Cup Race, five miles, free-for-all.

Entry blanks may be had by applying to Manager D. H. Lewis, 760 Main street, Buffalo, N. Y.

### WORCESTER ORPHANS' DAY.

#### Many Little Ones Enjoy Hospitality of Local Auto Club.

##### *Special Correspondence.*

WORCESTER, Mass., July 31.—The long-deferred outing of the orphans of Worcester by the members of the Worcester Automobile Club was given Saturday afternoon in a downpour of rain which considerably dampened the spirits of the happy little waifs.

The sun shone brightly all morning, and at 2 o'clock in the afternoon the cars began to assemble in City Hall plaza, but before a part of the contingent, which was at St. Anne's Orphanage, could get back and get in line, rain began to come down in large drops and continued uninterruptedly for about an hour and a half. There was a break then and it was decided to make the run into the country.

There were twenty-six cars in line, and these comfortably cared for 138 children. The procession was headed by M. Percival Whittall, chairman of the runs and tours committee, and members of the press, in his Pierce Arrow. The cars had only traveled about three miles out of the city when it began to rain heavily once more. They were then turned about and a record run made to "The White City," an amusement resort in Shrewsbury, on the shores of lake Quinsigamond, where the orphans were hustled in out of the rain. Between the occasional let-ups they visited most of the attractions in the park and had a royal time which was only marred by the shortening of the trip on account of the rain.

### TO POST ROAD SIGNS.

#### Worcester Club Directs Attention of Selectmen to Law's Requirements.

##### *Special Correspondence.*

WORCESTER, Mass., July 31.—There were whispers in the automobile club's quarters in the Bay State House during the Glidden tourists' trouble that in some way the local club would retaliate because of the treatment accorded the automobilists by country constables hereabouts in general and Chief Quinn, of Leicester, in particular. The expected has happened.

Letters were yesterday sent to the boards of selectmen of the neighboring towns calling attention to the fact that in many instances the Massachusetts law regarding sign posts was being disregarded and that for every missing sign post a fine of \$5 could be imposed. In this particular, Leicester is notoriously slack.

The law requires that a guide post be erected at every crossroads and fork, and in but few instances in Worcester county are such guide posts to be seen.

Unless the selectmen take immediate action in this matter, it is probable that the matter will be carried into the courts, as the legal department of the club appears to have at last come out of the oft-referred to "deep sleep" and, if appearances are to be taken for granted, means business.

### ANNUAL CARNIVAL AT LONG BRANCH.

Long Branch, N. J., will hold its second annual automobile carnival during the week of August 11-19, the programme of events including an automobile show in the West End Casino, floral parades, non-stop contests and a 24-hour contest. A non-stop night and day contest will be started at five minutes after midnight on Monday, August 14, and will finish, if any of the cars entered survive, just before midnight on Saturday, August 19. In connection with this contest a tire test will be made, the prize for which will be a silver cup, offered by Frank Burrells, of the New York Press Club. The New Jersey Coast Automobile Association will have charge of the carnival, with "Senator" W. J. Morgan as secretary and director.

### CHRISTIE TRIES FOR RECORD.

The Cape May Beach race meet, which was postponed from Saturday, July 22, to the following Saturday owing to rain, was again interfered with by the elements, and the condition of the beach was such that Walter Christie was unable to attain the speed anticipated with his double-motor blue racer. On Sunday, July 30, he made an attack on the flying kilometer, officially timed by S. M. Butler, of the A. C. A., but was unable to do better than 25 seconds flat, two seconds more than the record made by McDonald in the Napier at Ormond last winter.

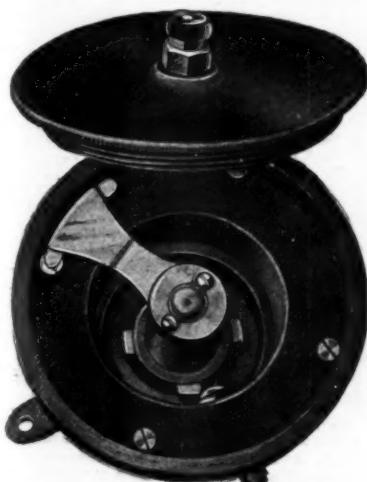
### ST. LOUIS COMPANY MOVES.

##### *Special Correspondence.*

St. Louis, July 29.—The St. Louis Motor Carriage Company announces the completion of arrangements whereby it has secured a factory at Peoria, Ill., and will at once remove to its new location. The new building is 350 by 75 feet, and three stories in height, with ten acres of land adjoining. The new factory will be started at once, and by the first of the year the company expects to have more than three hundred men employed.

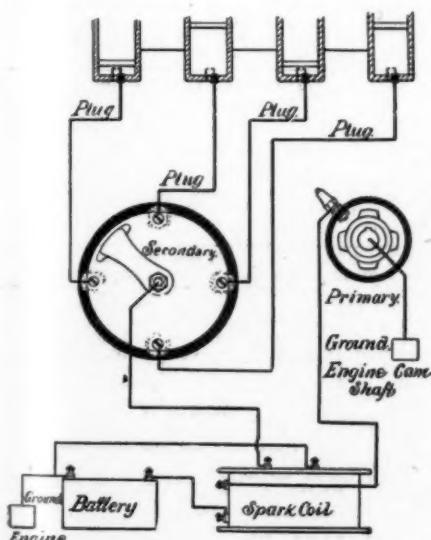
## INFORMATION FOR BUYERS.

**LEAVITT DISTRIBUTOR.**—A combined secondary distributor and primary contact maker, the invention of B. F. Leavitt, has just been brought out by the Uncas Specialty Co., 37 Shipping street, Norwich, Conn. The manufacturers have installed special machinery to facilitate the produc-



GENERAL VIEW OF LEAVITT TIMER.

tion of the timers in quantities. The general appearance of the instrument, with the cover removed, is shown in the halftone engraving, while the line drawing shows diagrammatically the way in which the connections are made, the primary and secondary contact makers being shown as separated for the sake of clearness, though they are combined in the one instrument.

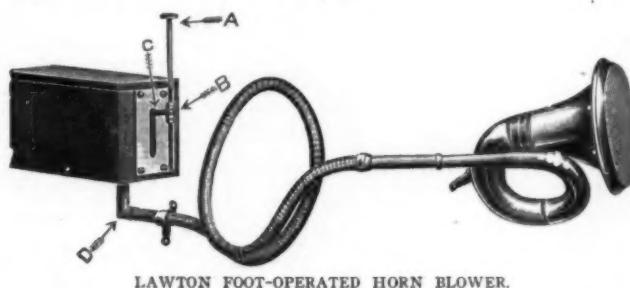


WIRING OF LEAVITT DISTRIBUTER.

The primary contacts are made by the touching of projections on a flange on the shaft (seen in the recess at the back of the timer) against a steel ball as they revolve, there being one of these projections for every cylinder to be fired. The ball is backed by a light spring which keeps it up to its work and automatically takes up wear. The diagram shows clearly how the wiring is done. The secondary circuit is closed by an arm which as it rotates makes contact with brass contact pieces connected with the binding posts for the plug wires. When the cover is in place a steel ball makes contact

between the revolving arm and a binding post on the cover, one of the secondary wires from the spark coil being attached to this post and the other grounded, as shown. The manufacturers state that this timer will run without attention and give entire satisfaction, the points where wear occurs being self-adjusting. The shaft itself runs on adjustable ball bearings. The distributor is 4 1/2 inches in diameter and 4 1/2

product. Acme gas plants are being used for many varieties of furnace work, such as hardening, tempering, annealing, crucible work, galvanizing, brazing, japanning, forging and welding, core ovens—in fact, all kinds of work where a steady, even heat under control is an advantage. The booklet provides some very interesting reading for those who are concerned in such matters.



LAWTON FOOT-OPERATED HORN BLOWER.

inches deep; the case is of solid hard rubber. It is fitted to take a half-inch shaft.

**BADGES AND PINS.**—All sorts of metallic club buttons, cap pins, race meet and tour badges, medals, cups and trophies are especially designed and carefully made to order by Nestor H. Brewster, Box 175, East Orange, N. J. Among the latest examples of his work in badge making are the official A. A. A. cap pin, showing the three A's grouped inside of two linked automobile tires, and the bronze pin with pendant badge worn by the participants in the Glidden Tour to the White Mountains. The work on Brewster pins and badges has an individuality of its own, and the prices are attractive.

**NEW SAMSON TIRES.**—Heretofore the well-known Samson leather tire treads have been applied to tires made in the ordinary way and intended originally for use with rubber treads. Recently, however, the Samson works in France has made arrangements for manufacturing complete tires with special reference to their use with leather treads. It is said that the tires so made will possess a number of advantages over the ordinary type. The new leather tread tires will be handled in America by A. E. Gallien, 20 Park Square, Boston, agent for Samson tires and treads. The poor condition of the average American road makes the subject of tires of this type a particularly interesting one.

**ACME GAS.**—The Acme Gas Co., of Chicago, Ill., has issued a handsomely illustrated and interesting booklet of more than 60 pages, describing the gas plants made by this concern for fuel, light and power purposes. The Acme generator consists of an apparatus for forcing air under pressure through crude distillate of petroleum, the air and oil being combined, it is stated, in the form of a fixed gas very similar in its character to natural gas. An advantage claimed is that the gas contains no sulphur or other impurities that injuriously affect metals, and for this reason is especially adapted for use in furnaces and the like where metals are heated. Special burners are not required, the gas being burned, as a rule, from open pipes. Acme gas plants, the booklet states, are automatic in operation after the oil and air pumps have been started, adjusting themselves to the quantity of gas being consumed. If half the consumption of gas is suddenly cut off, the generator at once cuts down its production proportionately; the cost of operation decreases in proportion to the reduction of

**HORN BLOWER.**—Sounding the horn of an automobile is not what could be called a difficult operation, or one requiring much mental or physical exertion on the part of the operator; but it is frequently necessary to make a noise with that instrument when the car is in close quarters, in a traffic-crowded street or in some sort of a tight place, when both hands are so busy doing other things that one of them can ill be spared even for the instant required to perform the necessary job. In such a case the foot-power horn blower manufactured by the Lawton Manufacturing Co., 150 Myrtle avenue, Fitchburg, Mass., should be most useful. This apparatus consists of a small box containing the blower; a plunger, to the top of which is secured a foot button; and the horn itself and necessary connections. The box is fastened to the sill under the footboard with the plunger rod extending upward; this rod is adjustable for length and will answer for any car. All that is then necessary is to run the flexible tubing to the horn and connect it up. A pressure of the foot produces a loud blast of the horn.

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Advertisements inserted under this heading at 20 cents per line; about 7 words make a line. Remittance should accompany copy. Replies forwarded if postage is furnished.

AUTO ENGINE with transmission attached, 4 h. p., \$55; fine order. L. J. Monahan, Oshkosh, Wis.

A TEN-PASSENGER WAGONETTE; sample car; 1905-6 model; steam; price and description on application. Thompson Auto Co., Oneinyville sq., Providence, R. I. Aug. 3.

AUTOMOBILE OWNERS, Drivers, Repairmen, chauffeurs, and others wanted all over the country; 50,000 machines built this year in United States, affording great opportunities for trained men; 6 cents a day will qualify you for good wages in this growing field. For full particulars, address Dept. A159, The Correspondence School of Automobile Engineering, Akron, Ohio. Aug. 3.

SPLENDID OPPORTUNITY for hotel and livery. Two 2-seated and two 3-seated brakes and one 16-passenger bus, all electric, will be sold at low prices and easy terms, to close manufacturing business. Standard construction, practically new, and in first-class condition every way, including batteries; run but very little. Send for photos and prices. S. F. Bancroft, 1400 Michigan Ave., Chicago, Ill. t.f.

ARTILLERY WHEELS—We have a collection of a few odd sets of Midgley pressed steel wheels with clincher, perfected Dunlop and single tube rims, which could be used to advantage in building a new machine or in remodeling an old one. This collection is a miscellaneous one, composed of sample sets, exhibition wheels and unsold stock, and not scrap or "seconds." Each and every wheel sold under guarantee. They will improve the appearance of your machine and make your old car look like an up-to-date model. While they last we are offering them at extremely low prices. We have a special offer to make Stanley agents and machine owners. Write for booklet. The Midgley Mfg. Co., Columbus, Ohio. Aug. 17.

BUICK CARS—We have two new Buick cars, used a few times for demonstrations only, in first-class order, that we will cut out cheap to immediate buyer; can be seen at our garage, 754-760 Bedford Ave., Brooklyn. The I. S. Remson Mfg. Co. Aug. 3.

DO YOU want to buy, sell or exchange your automobile? We have all makes and models, some of them almost new; write for our partial list of bargains. Manhattan Storage Co., 334-340 West 44th St., New York City. Aug. 3.

FOR SALE—1904 Franklin Tonneau; like new; \$1,000. Address Chauncey D. Hakes, Albany, N. Y. Aug. 10.

FOR SALE—25-h. p. Santos-Dumont 1904 touring car in perfect condition, run only 500 miles; cost \$2,500, will sell for \$950. Devilin & Co., 1407 Michigan Blvd., Chicago, Ill. Aug. 3.